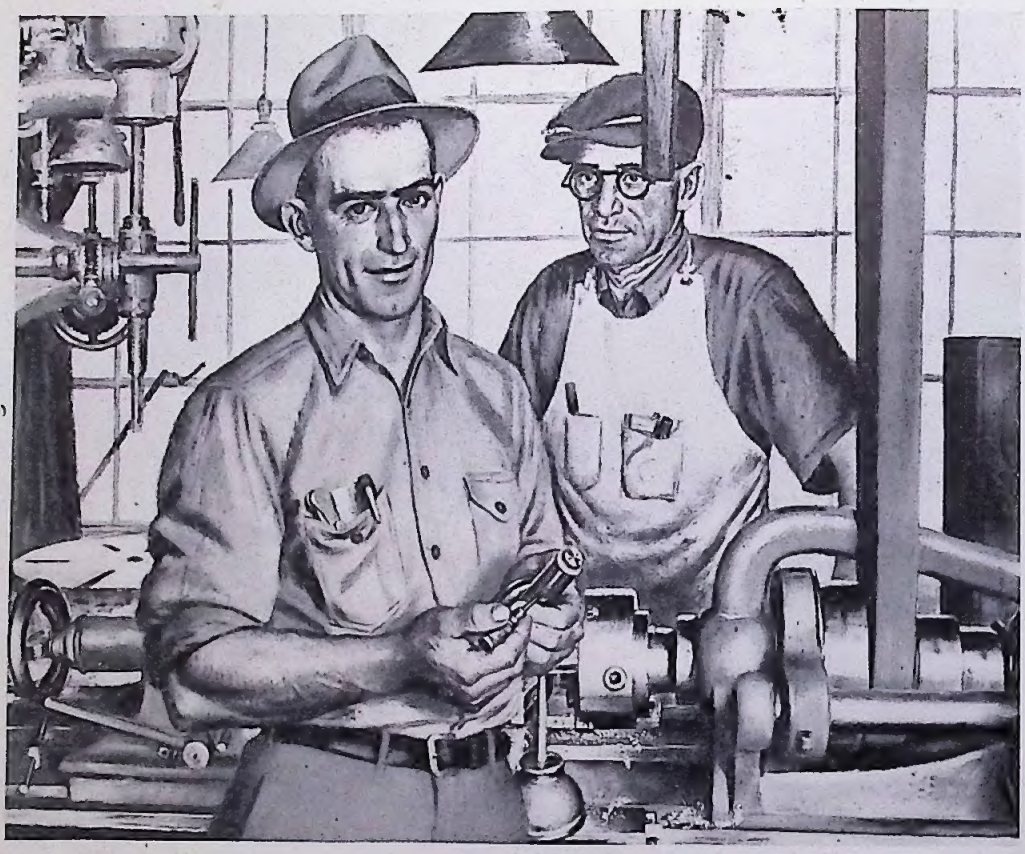
Trains

25¢

August, 1946



"Train wheels keep our wheels turning, too!"

"WE'RE PRODUCERS here—and proud of our product. We're proud, too, of the part our plant plays in the life of our town.

"We started small but, because folks everywhere can buy what we make, we've grown a little every year. Without the railroads, though, we'd still be shoeing horses here. I say that because the railroads not only bring in *our raw materials—they* carry away *our finished product to markets all over America.*

"Is it any wonder I consider the railroads just about the best kind of partner a man could have?"

•

The success of almost any enterprise depends in a very large measure upon the nation's railroads. With their active partnership, American enterprise has made possible a standard of living unmatched in the history of the world.

And this partnership of the American railroads with the American people is fundamentally a home-town affair. For the railroads themselves are a local, home-town business in every community they serve. They employ local people, buy supplies locally, own local property and pay local taxes on it.

These taxes aren't spent for the benefit of the railroads. They are the same kind *you* pay.—taxes that help support schools, public health, and other local government services.

ASSOCIATION OF **AMERICAN RAILROADS** WASHINGTON 6, D. C.

Trains

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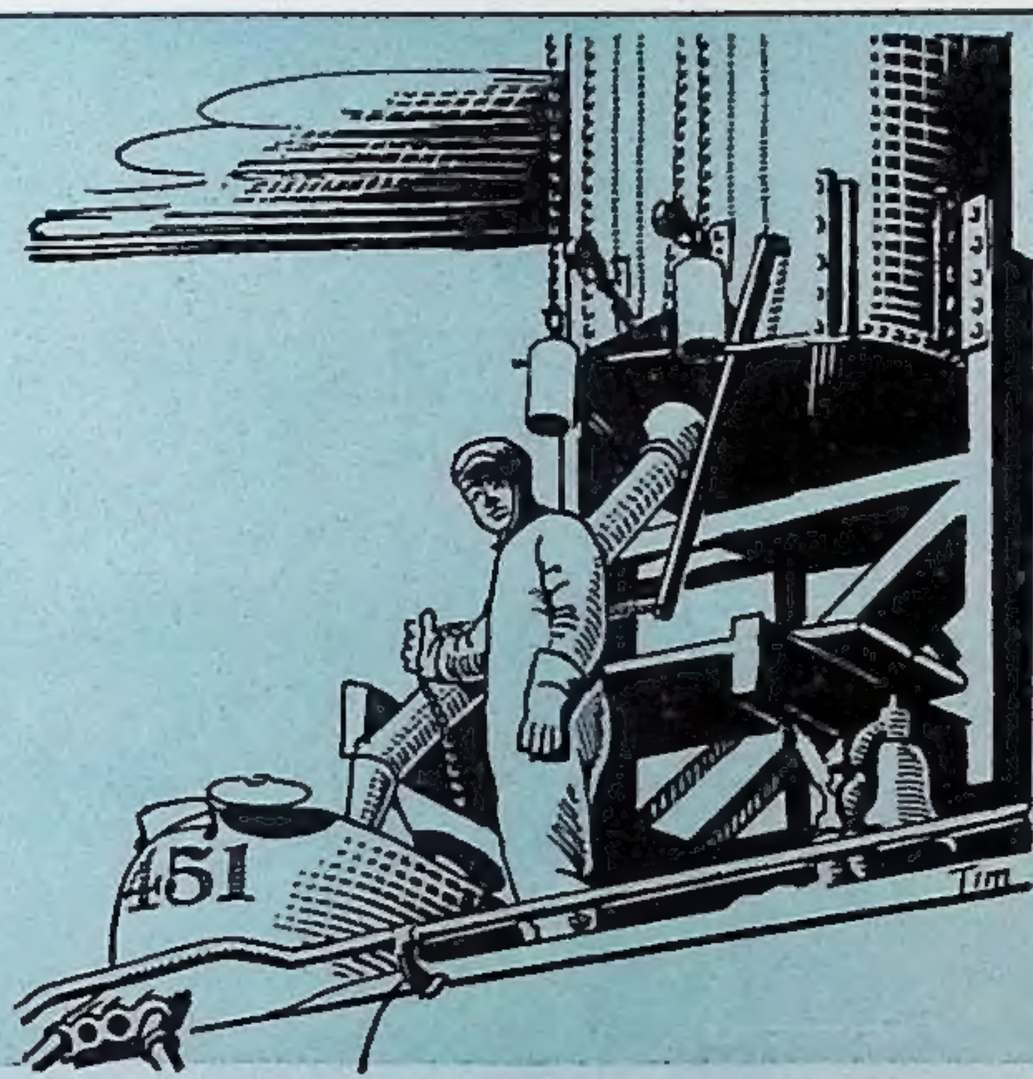

"Our railroads carry each year more than a billion tons of freight and a billion passengers. They give work to nearly two million people. Railroad transportation is one of the most important industries we have. Certainly no other industry has done more to make the United States a rich and powerful nation."—T. W. Van Metre.

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August 1946

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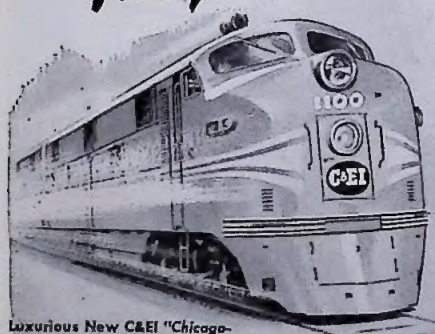
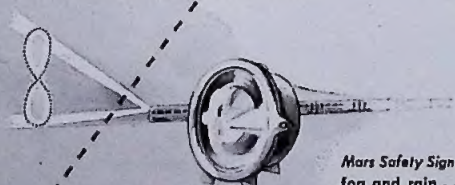
They're rolling on the C&EI

FASTER AND SAFER THAN EVER BEFORE

Yes, there are plenty of reasons for C&EI's faster and safer service . . . a few you see below . . . more are on the way. The C&EI modernization program is in full swing, designed with just one thought in mind . . . to provide you and the growing transportation needs of the great Middlewest with the finest, fastest and safest rail service in the long history of C&EI.



Luxurious New C&EI "Chicago-Liners" . . . scheduled to be placed in service soon, the new "Chicago-Liners" will provide the ultimate in modern, fast, streamlined trains.



Mars Safety Signal . . . pierces fog and rain . . . visible up to 8 miles at night, 3 miles in daylight . . . now standard equipment on C&EI Passenger trains.

C. T. C.—Centralized Traffic Control . . . now being installed for greater speed, efficiency and safety in operation of both passenger and freight trains.

New High Speed Diesel Locomotives . . . now in service —these electromotive power units provide smoother, quieter riding comfort.

For SERVICE . . . SPEED . . . SAFETY

Specify

C&EI — The CHICAGO Line

When you SHIP . . .
When you TRAVEL

CHICAGO & EASTERN ILLINOIS *railroad*

The Chicago Line

Through to Texas and Mexico City

The Sunday evening crowds hurried as usual across the broad steel girded concourse of Pennsylvania Station, New York. Dull sounds of trains came from the track level two floors below and a vortex of people formed around the stairway to the 9:30 Philadelphia-Baltimore-Washington express. But the smaller knot of travelers around the gateway to track four were not just boarding a train. They were making railroad history.

The sign at track four read *Sunshine Special*, and the gatemen were examining coach tickets to Texas and Arkansas while the conductors checked in Pullman passengers to such points as Houston and El Paso and Mexico City. For the first time a through train was to leave New York City on regular schedule with no passengers except for points beyond St. Louis.

The date was July 7. Three hours earlier the *Sunshine Special*, Missouri Pacific-Texas & Pacific flyer of 30 years' standing, had originated in St. Louis for the last time. From now on the famed train to Texas, with through cars to Mexico, would start from New York and Washington on the Pennsylvania, not as a connection but as an honest to goodness through train using equipment of all three roads. All the way across the East and across Ohio and Indiana and Illinois it would stop only to pick up passengers for beyond St. Louis. In St. Louis it would stop not for switching of a few through cars from train to train, but for servicing of the entire makeup; lounge car and dining car New York to Dallas, coaches New York to Dallas and San Antonio and Washington to Houston, sleeping cars to the Texas cities and to Mexico City. For 2409 miles the *Sunshine Special* does not lose its identity.

In St. Louis also sleeping cars and a coach are added from the new Texas-Oklahoma section of New York Central's *Southwestern Limited* and a sleeping car is added from Chesapeake & Ohio's *George Washington*. St. Louis thus assumes new importance as a mid-continent gateway between eastern and western railroads. The wide Southwest is brought closer by rail to the industrial Northeast.

But this great through train is not all. On the same date B&O, NYC and Pennsylvania started through car service in connection with the Frisco serving Tulsa and Oklahoma City, as well as Dallas, Waco, Austin and San Antonio via the M-K-T *Texas Special* route. These through cars operate in existing trains to each side of St. Louis and there is some layover time in St. Louis. The setup is much the same as the transcontinental service through Chicago. B&O also joins the MoPac with through cars on the *National Limited* transferred to the *Texan* westbound and from the *Sunshine Special* eastbound.

President M. W. Clement of the Pennsylvania hailed the new *Sunshine Special* as "a most important milestone in American railroad history." It is indeed the most important as well as spectacular addition yet made to the large fleet of interline trains operated by PRR. It was 70 years ago, April 17, 1876, that the New Haven and the Pennsylvania joined in operating the *Federal* through between Washington and New England. Twelve years later Pennsylvania, RF&P, ACL and FEC joined to operate the *Florida Special* through from New York to Florida. The Pennsylvania-Chesapeake & Ohio route was established in 1889 with the *Fast Flying Virginian (FFV)*. Washington-Montreal service over Pennsylvania, New Haven, Boston & Maine, Central Vermont, and Canadian National started in 1924 with the *Montrealer*. New York-New Orleans service came in 1925 when Pennsylvania, Southern, West Point Route, and L&N joined to run the *Crescent*. The Chicago-Detroit service in connection with the Wabash dates only from 1935. All told Pennsylvania now originates some two dozen interline trains, but the new *Sunshine Special* easily tops the list for mileage and number of points served.

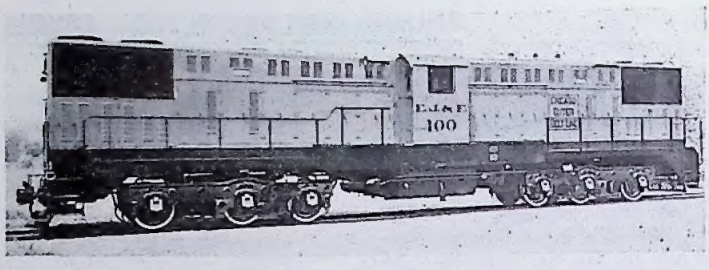
Not only are Texas and New York brought closer together, but because of the short time in St. Louis and the fact that the makeup includes coaches as well as sleepers the new service via both PRR and NYC makes it easier to travel between points such as Columbus or Cleveland, O., and Poplar Bluff, Mo., or Little Rock, Ark.

Hardly had the details been released when Chesapeake & Ohio chortled, "The announcement that the bottleneck at St. Louis has finally been broken following an intensive newspaper advertising campaign conducted by C&O demonstrates again the power of the press in mobilizing public opinion." And indeed C&O, and its board chairman, Robert Young, could chortle. For whether by cause and effect or by an exceptional sense of the inevitable, C&O now had three scores to its credit. Its advertising for through service across the Chicago gateway ("A hog can cross America without changing cars but you can't.") had been followed promptly by announcement of Pullman cars coast-to-coast through Chicago. Its advertising about the Pullman black market, suggesting a penalty when reservations were not given up far enough in advance of train departure to permit resale, had been followed promptly by application of the Pullman Company for permission to make a new rule, "No refunds on unused Pullman space unless canceled day before departure." And now the newspaper advertising campaign for service through St. Louis was followed by the July 7 development. Clearly this was more than coincidence. Railroad men said the through services had been in the planning stages for years. But to John Q. Public it looked as if Robert Young was a pretty good needler.

Pere Marquette Streamliners

The first complete postwar ordered trains to be delivered in America are now in service. They are the two daytime *Pere Marquettes* which provide three round trips daily and two on Sunday between Detroit and Grand Rapids over the Pere Marquette.

The exteriors are stainless steel, colorfully decorated in maize and blue with the road name lettered in free flowing script. Makeup includes two coaches with smoking



Baldwin's new 2000 horsepower Diesel-electric transfer locomotive is driven by motors on all axles, which accounts for queer wheel spacing.

lounges, two coaches with observation lounges, a baggage car, mail car and diner. The diners are first of the new Pullman type with diagonal seating. Kitchens are in the middles of the cars with dining rooms to each end.

Schedule is two hours and 40 minutes for the 148 miles.

The Powhatan Arrow

Daytime service between Norfolk and Cincinnati is provided for the first time by Norfolk & Western's new steam powered streamliner, the *Powhatan Arrow*, which is already in service. The train is an all reserved seat coach, with lounge car and diner. N&W's standard de luxe coaches are used, but for this service they have been refinished and fitted with flourescent lighting, cushioned flooring, larger rest rooms, wide windows, and colored photo murals of the N&W territory.

Power is provided by 4-8-4 streamlined Class J locomotives. Over-all schedule speed averages 44 miles per hour, which means some fast running in order to make up for the slower pull over the mountains.

A retired N&W section man, Leonard Scott of Dry Branch, Va., won $500 in a contest for the train's name. He recalled that Powhatan is a station on the Elkhorn section of N&W and that Powhatan was father of Pocahontas, for whom another N&W train is named.

New Passenger Equipment

The Lackawanna has ordered six streamlined sleeping cars from American Car & Foundry. . . . Pennsylvania Railroad is operating a new mail car, named *Robert E. Hannegan* after the postmaster general, in the *Broadway Limited* between Chicago and New York. The car incorporates many ideas suggested by railway mail clerks, including an enlarged washroom, modernized heating system, new type water cooler, improved wardrobe, more efficient lighting, new type windows, and a new ventilation system. The car was dedicated during the Railway Mail Association convention in Chicago.

The Florida East Coast, Atlantic Coast Line, RF&P and Pennsylvania Railroad have jointly placed orders for 117 passenger train cars with which to modernize three trains in their New York-Florida service. The group includes 71 all-room sleepers, 30 coaches, 13 diners with diagonal seating, and 3 baggage cars.

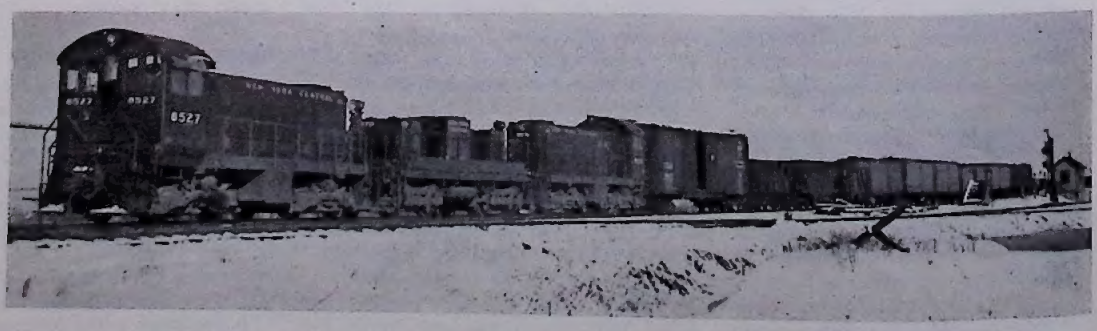
Locomotive Notes

American Locomotive Company is building welded boilers for the first time in United States railroad history. This new development climaxes nine years of experimental operation for a welded boiler built by Alco for a Consolidation locomotive of the D&H and operated since under strict I. C. C. supervision. The boiler has been completely free of leaks during this period and seams are still in perfect condition. A welded boiler saves from 3000 to 6000 pounds of dead weight and makes a great saving in maintenance expense. . . . Great Northern has ordered 20 additional Diesel locomotives, including three 2000 horsepower passenger, two 3000 horsepower passenger, three 3000 horsepower freight, four 1500 horsepower passenger and eight 1500 horsepower road switchers. When these are delivered Big G will have 137 Diesels.

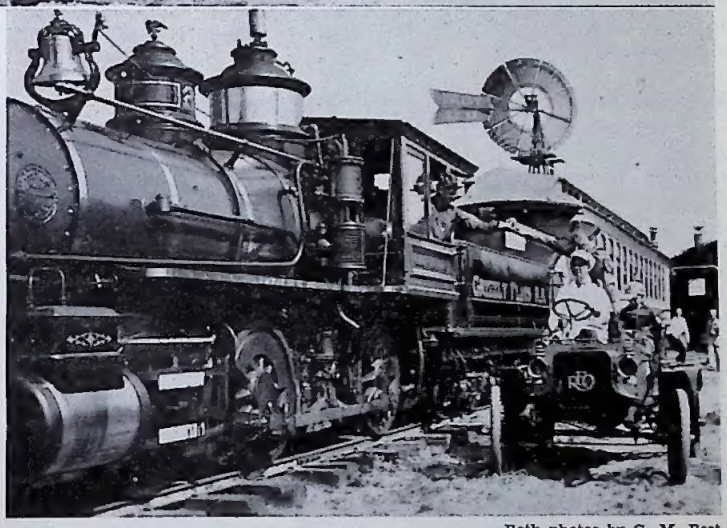
The Chesapeake & Ohio has ordered 40 new steam freight locomotives of the Berkshire (2-8-4) wheel arrangement. Thirty will be built by Alco and 10 by Lima. Delivery is expected late this year. . . . New York Central has taken delivery of a 4-8-4 locomotive equipped with the Franklin system of poppet valves. It is numbered 5500 and will be tested in comparison with other new 4-8-4's of the 6000 class which are the same except for conventional piston valve steam distribution.

Another Narrow Gauge to Go

Rio Grande Southern, the line of the *Galloping Geese*, will soon lose its mail contract and the road is then almost certain to cease operations. The 162 mile three foot gauge road forms the west



New York Central is now using two Diesel switchers in multiple for hump work, and to make use of the full Diesel horsepower at slow speeds has put in an extra locomotive unit between the two Diesel units.



The Grizzly Flats Railroad, private narrow gauge line of Ward Kimball at San Gabriel, Calif., played host recently to the Horseless Carriage Club, a group of owners of old automobiles. The Grizzly Flats now has 600 feet of track with 1000 more feet of rail on order. The locomotive is the Emma Nevada, ex-Nevada Central. Recent additions to the line include box car and caboose from Nevada County narrow gauge, and water tank and windmill which actually pumps water. In top general view of field day the Emma Nevada comes down the main track from the engine and car house. At bottom Mrs. Kimball hands Ward his lunch from seat of 1905 Reo driven by John Carra.

Both photos by G. M. Best.

end of the famed Colorado narrow gauge loop, around which tourists rode in style in the heyday of the narrow gauges. During the war RGS was miraculously kept alive by government loans, and the reason became obvious when the first atomic bomb exploded over Hiroshima. The road carried mine products used in the bombs.

This summer and fall offer the last opportunity to ride on the converted Pierce-Arrow motor cars which furnish mail, express and passenger service. It is also perhaps a last chance for other of the Colorado narrow gauges.

Railroad Losses

Railroads, like most other American business, are going badly in the red so far in 1946 due to increased costs of operation without comparable increases in price. Even the blue chip Pennsylvania Railroad did not cover expenses for the first five months of the year, and was far short of making such fixed charges as bond interest. The deficit of net railway operating income, which is figured before fixed charges, was nearly $7 million for PRR alone.

Into this picture the I. C. C. stepped with a very disappointing temporary freight rate increase of about six per cent average instead of the 25 per cent the railroads had asked for. This increase did not even cover the cost of the latest wage award, and left nothing to put toward costs of supplies, up some 30 per cent since prewar, and of earlier wartime wage increases. Certain it is that I. C. C. must grant further increases in rates if the railroads are to regain even their not-too-good prewar credit standing. From the public interest it is desirable that railroad credit be even better so that roads can sell common stock at par for new financing and improvements and get away from the yoke of bonded indebtedness.

The I. C. C. will hold long hearings and finally give a permanent decision which may well allow the railroads more increase than the temporary allowance. Past policies have held the roads to such small earnings that even the wartime peak represented only four per cent average on investment. Under such policy weaker roads have abandoned or gone through the wringer, and even the stronger roads have not been too attractive to stockholders, with the result that while good railroad bonds have been eagerly snapped up railroad common stocks have not sold at par. High railroad bonded indebtedness is widely bemoaned, but only profitable operation can cure the evil by restoring railroad credit with stockholders.

Shawmut to Quit

Pittsburgh, Shawmut & Northern, a 144-mile line which has been in receivership since August 1, 1905, has applied for permission

to abandon its entire road including branches. The main line extends from Wayland Junction, N. Y., to Hyde, Pa. Principal traffic item of the road is bituminous coal. Connections are made with Lackawanna, Erie, Pennsylvania, B&O and Pittsburgh & Shawmut. P&S together with PS&N forms a continuous 232-mile route northeastward from Freeport Junction, north of Pittsburgh on the Allegheny River, through the coal country into New York's Finger Lake country. Attempts had been made to consolidate the two roads, and P&S now holds some investment in PS&N.

Railroad Reading Matter

An all-time roster of Pacific Electric equipment has been published by *Interurbans*, the National Electric Railway News Digest, 1414 S. Westmoreland Ave., Los Angeles 6, Calif. It is attractively and comprehensively illustrated. Copies are $1 postpaid. . . . "Old Switchback Railroad," the history of the Mauch Chunk switchback, has been privately published by Harry Lentz, Lebanon, Pa. . . . One of the most comprehensive studies of motive power we have seen is George M. Hart's "History of the Locomotives of the Reading Co." Issued as Bulletin 67 of the Railway & Locomotive Historical Society, this 124-page book sells for $1 to members, $2 to nonmembers. Address the Society, Baker Library, Harvard Business School, Boston, Mass.

The standard textbook on railroad operation by rulebook and train order, "Harry W. Foreman's "Rights of Trains," has been revised by Peter Josserand, editor of *The Train Dispatcher*, and published by Simmons-Boardman Publishing Company, 39 Church Street, New York, N. Y. . . . An interesting and valuable series of old-time facsimiles is being prepared by Railroad Research Associates and published by Grahame Hardy, Oakland, Calif. Items so far available include an 1840 Baldwin Catalogue, a tourist map of Colorado railroads dating from the days when Union Pacific owned the South Park narrow gauge network, an 1887 South Pacific Coast timetable, and a Colorado Midland bulletin of 1887. . . . *The Western Railroader*, Box 668, San Mateo, Calif., has on hand extra copies of its special issue, "Railroads and Steamers of Lake Tahoe." Price 50 cents each. . . . "Passenger Class Distinction" is a new 75-page book by Charles E. Lee tracing the evolution and development of railway classes and accommodations in England. Price six shillings. Publisher Railway Gazette, 33 Tothill Street, Westminster, London, SW 1.

Odds and Ends

Railroad advertising, conspicuously absent during the war, is now back among the timetable listings in the "Official Guide." "Route your patrons via the St. Louis gateway," says Missouri Pacific. "Now fastest train in history, New Orleans-Los Angeles," says SP. "This way to play," says the Milwaukee, with a picture of trains lined up at the concourse. . . . Since 1940 the Milwaukee Road has built 96 miles (11,624 units) of new freight cars in its West Milwaukee shops. . . . The country's newest railroad is the Saratoga & Schuylerville, former Saratoga branch of the B&M.

The *Dixie Limited*, joint C&EI, L&N, NC&StL, CofG, ACL and FEC train to Florida has been speeded up. . . . The state of Georgia has paid off the last bonds on the old Western & Atlantic Railroad over which the *General* and *Texas* ran their famous Civil War race. The line, from Atlanta to Chatanooga, is now leased to the NC&StL. . . . *Katy* stars in the movie "Bad Man's Territory." The old-time train is standard movie property, but it is relettered with the historic MK&T Railway Company to help place the action in the old Cimarron country of the Oklahoma panhandle which in the 1880's was plenty tough western country.

Kansas City Union Station is getting escalators between concourse and platform level. They are reversible so they can be used for both loading and unloading trains. . . . New York, Ontario & Western is tearing up its second track and reverting to single-track operation. . . . The largest special narrow gauge locomotives ever built by General Electric are special industrial locos now being completed for plant work within the Carnegie-Illinois Steel Company.

Jamestown, Westfield & Northwestern, an electric line connecting Jamestown on the Erie with Westfield, N. Y., on the NYC, will abandon electric passenger service as soon as busses can be obtained. Freight will be pulled by Diesels, and electric overhead will be taken down. The road has a beautiful line along the shore of Lake Chautauqua and is a favorite railfan ride easily taken by stopping over between main line NYC trains at Westfield. . . . An all-time record for the rail movement of grain to ports for shipment overseas was established in June when 26,385 carloads of grain for export were delivered to ports.

Foreign Notes

The Southern Railway of England is to spend nearly $2½ million in rebuilding its boat docks at Southampton where luxurious boat trains meet such ocean steamers as the "Queen Mary" and "Queen Elizabeth." . . . Pennsylvania Railroad is expanding its London office, which was maintained all during the war. This office co-ordinates and directs activities of Pennsylvania representatives in Europe, the Near East and Africa. . . . The Soviet Union has ordered 13 2-10-0 type steam locomotives of five foot gauge from the American Locomotive Company.

Yarn of the Month Club

The division superintendent was telling about the transfer of big high power steam locomotives from the main line to the Green Bay run. "Second day we had them on the Green Bay line one train drew one of the older light engines which had been standard on the run for years. But after one day with the big engine, the engineer came in late and the delay report read, 'Delayed account having light engine.'"

Busiest Main Line

Is the Pennsylvania main line between Philadelphia and New York busy? The other day I left North Philadelphia on a New York-bound clocker and started counting trains. In the 18 miles to Bristol we passed 10 trains, 6 westbound passenger, 2 westbound freight, 1 eastbound passenger and 1 eastbound freight. All this while we moved right along at a good steady 70 per.

A. C. Kalmbach.

Now in the making...

six transcontinental Speedliners

THE OLYMPIAN HIAWATHAS, as these brand new Milwaukee Road trains will be called, are to be placed in service early next year between Chicago-Milwaukee-Twin Cities-Spokane-Seattle-Tacoma.

Details of appointments and interior design have not yet been fixed. Thus The Milwaukee Road can take the fullest advantage of new materials and devices which may be made available in the coming months. Meantime, work on the advanced-type trucks and car bodies is going steadily forward at the Road's modern manufacturing plant at Milwaukee, Wisconsin, where the equipment for the series of famous day-time HIAWATHAS was built. Construction of the all-room sleeping cars is now under way in the Pullman shops.

In designing and building the OLYMPIAN HIAWATHAS, The Milwaukee Road has drawn upon its long experience in operating transcontinental and super-speed trains, as well as upon the suggestions offered by thousands of passengers. We are confident the new units will take a distinguished place among the fine Milwaukee Road trains which, over the years, have made so many brilliant contributions to rail progress.

F. N. Hicks, Passenger Traffic Manager,
The Milwaukee Road,
Room 710, Union Station,
Chicago 6, Illinois.

THE MILWAUKEE ROAD

Only railroad all the way between Chicago and the Pacific north coast

Shadows of the Sandy River

For 67 years rural Maine was serviced by midget railroads that hauled lumber, rock and passengers

BY LINWOOD W. MOODY
ILLUSTRATIONS BY F. L. JAQUES

The Monson Railroad is gone. The last survivor of a once extensive network, and an audacious scheme for a virtual Canada-to-the-sea narrow gauge empire has rolled into the flickering shadows of memory.

Much has been written about these Lilliputian Lines, and much is left to be written. Only a few years ago, we saw the lingering rays of sunset softening the hard cast of pint-size engines and cars and narrow, curving track. Now the sun has set for the two-footers. Gathering dusk has melted the grim deserted roadbeds into softer diffusion and in the darkness following the Monson's eclipse there remain only memories of 67 years of midget railroading.

In the early hours of their sunrise, 10 elfin railroads operated in Maine alone, while five others dotted the South and West, with at least two more in old Mexico, but of all these the "Sandy River" was the most impressive. This little road, the Sandy River & Rangeley Lakes, with its 120 miles of track, 17 locomotives, and more than 300 cars, was the best of its kind. While others were true two-footers, steam powered, none ever quite reached the mechanical perfection and spread of mileage that made the Sandy River the pride of everyone in Franklin County, Me.

Memories of the Sandy River will live forever. We may still see in our imaginations, after 11 years of twilight, the bustle at about eight o'clock on a winter morning at Strong, a railroad town de luxe. The SR&RL main line hits the Kingfield branch here and no western division point could offer more in the way of railroad atmosphere. The down train from Phillips has just steamed in. More magnificent clouds as roll from these little stacks, more vivacious wings as flit from their cylinder cocks to breeze jauntily back along the train are never seen on standard roads. Little No. 10, the high-wheeled Baldwin pulling the train from Rangeley and Phillips and destined to reach Farmington in another hour or so, comes tearing up over the road crossing, her chime whistle shrieking a morning hail to the sleepy town, rocks crazily through the switches to halt with the galaxy of sounds that go with the finest *Limiteds;* a sight worth traveling far to see.

Amid the bustle and confusion around the platform, Dana Aldrich, the veteran engineer, drops off to fuss among rods and grease cups, and Fireman Een Campbell is busy on the little engine's precarious tank, giving her a morning drink. Three box cars back, where the combination is spotted opposite a pile of mail-bags, Conductor Bob McMullen is engaged in heated debate with Pansy, the station agent, while Brakeman Joe Boston deftly slings mail and egg cases into the baggage car — all to the obvious delight of onlookers.

While all this is going on another sound floats down on the frosty winter air — a shrill chime whistle from beyond the toothpick mill. No. 16 is coming and this very minute is screeching her

warning for Starbird's Crossing. As she comes nearer, her lyric whistle knocks off the crossroads until finally she billows around the corner of the 'pick mill. The Kingfield job is in and has only two minutes to transfer passengers, mail, and a freight car or two onto the waiting Farmington train.

To the din of panting air pumps and hissing pressure, stamping feet and shouts of warning, they are ready to go; Dana hops aboard his No. 10, Bob waves a highball, puppy wheels click over frogs, and Pansy, hands in pockets, dolefully watches them swing onto Strong Mountain and out of sight.

This little road saw the peep of sunrise back in 1879 when the original Sandy River Railroad was built 18 miles from Farmington through Strong to Phillips. The very beginning was really in Massachusetts two years before when the Bedford & Billerica Railroad laid six miles of 25 pound steel, and did its brief hitch with two Hinckley Fornies. But railroad business wasn't so good in eastern Massachusetts, the sun never really got the B&B warm, and its short life was spent in dusky uncertainty. So, in 1879, it went lock, stock and powder-horn up to Farmington, where it was appreciated.

In the feverish weeks that followed men raced against time, and 18 miles of track went down. Some was laid on hastily shoveled grade while more was spiked to the 74 trestles over Franklin County's forbidding terrain.

All this nearly ended in disaster. Along in late November, with Phillips still miles away, it looked as if no trains would arrive before the fatal date set by its sponsoring fathers. No train by November 30, they had warned, no money would they pay. But like the good pioneers they were, the townsmen turned out en masse and blitzed the laboring little line into town. As the blizzard raged and patriots cheered, the Hinckley *Ariel* wheezed in over shaky rails just as the clock in the tower boomed.

The tiny engines puffed through and soon

more little strangers appeared in the offing. First was the Franklin & Megantic Railroad, financed by the Boston firm of A. & O. W. Mead, and built from Strong north through Salem to Kingfield, 14.6 miles. In due time the F&M continued up the hill to Carrabasset and Bigelow, 17 miles more, under the "paper" name of Kingfield & Dead River Railroad. In 1899, the people of Rangeley, also financed by Massachusetts money, began their Phillips & Rangeley Railroad with 28.6 miles of real mountain track. Later "paper" companies, the Eustis Railroad and the Madrid Railroad, laid a total of some 30 miles into various parts of the timber lands.

Phillips was more or less the mechanical center with the locomotive shops, car shops, and general offices. For a time, business was so brisk that stockholders were dazzled by a 45 per cent return on their cash. One year the equivalent of 5000 standard gauge cars were moved and 17 engines stayed hot 24 hours a day. The *Rangeley Express*, hauling the famous parlor car with its colored porter and deep, swinging seats, carried rusticators to the finest hunting and fishing in the world — the Dead River region. This saucy streak of varnish, six or eight polished coaches and a gaily bedecked little engine, snorted away the five per cent hills and 30 degree curves to the tune of 47 miles in two hours, including several station stops. Fox, deer, and wise old bears girded their loins when the *Rangeley Express* came up Sluice Hill and across Redington Strait. Conductors, picking up their tickets, would burst an adrenal gland should some nervy lumberjack ask to get off at Perham Junction or Camp Eight, thereby delaying the crack train a minute on its careening flight.

One winter day, when the snow was piled to the tops of the cars, a Frenchman snowshoed out of the big woods for his first hike into the region since the railroad came. He hit the P&R around Dallas and since the flangers had made a hard smooth path between the little rails, he elected to walk the track, snowshoes over his shoulder. Presently a foreign sound tickled his ears — the steady, even beat of exhaust. However, the king of the ax heard in it only the voice of a devil bent upon his destruction. Then, glancing over his shoulder, he was sure of it; a strange monster with billowing breath and menacing growl was close on his heels and the

trail was too narrow for it to pass. The bewildered woodsman muttered, "Que l'enfer?" and began to run. How long the race would have lasted will never be known, because a gang of sectionmen, hearing the tooting whistle and seeing the contestants coming, grabbed and pulled him off into the snow. The *Express* streaked by.

"Why in hell didn't you get off the track?" the foreman roared.

"Sacre-bleu! If I leave that good trail the dam' thing she catch me sure!"

Other passenger trains were operating, too. Over on the F&M, denizens of Kingfield and Jerusalem Township got the best of service. A mixed job shuttled over the Eustis road, and an early morning train from Phillips to Farmington added still more traffic to that bottleneck below Strong. Freight trains were abundant. Logging trains puffed and clanked over the Madrid and Mount Abraham branches, Barnjum's road, and the line to Alder Stream from Kingfield. On the Eustis Railroad beyond Green's Farm, a logging road ran up the back side of Redington Mountain, branching at Dago Junction to wander aimlessly up the west branch of Nash's Stream.

Lumber mills were everywhere. At Madrid Station the Berlin Mills Company did a booming business, and at Sanders a whole town sprang up around the big mill there. Today you can comb the woods and not a sign of Sanders will be found. The Farmington yard kept two or three switchers and an army of men busy transferring freight. In its heyday, more than a dozen stations were open and train orders went by telegraph over the Western Union wire. There were excursions too, and often some millionaire chartered a private train to take him to his favorite fishing stream.

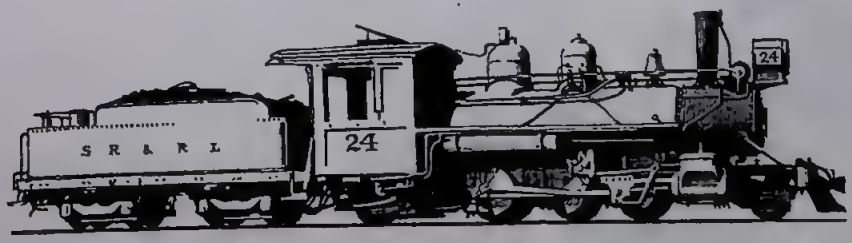
Like the wild flower excursions on the Colorado Midland, the Sandy River had picnic specials and sightseeing tours, popular in the good old days. The Cascades, high up at the top of Sluice Hill, were a spot that pleased the holiday seeker; here a mountain stream crossed to shoot into space for a drop of 80 feet to the rocks below. The open excursion cars discharged their loads at the bridge and picked them up again in the evening.

Not all Sandy River trains were the serene, businesslike affairs of the pampered East: a trainful of lumberjacks coming out for their annual spree would equal the riots of Cripple Crick or Tombstone except, perhaps, that no one was killed. When a long drag of logs took the bit in its teeth and reeled down the five per cent grade in nothing flat, we have it on good authority that the ride was no different from the more widely dramatized runaways of the Golden West.

One night a train of logs was heading for Phillips from the Eustis branch. Clarence Fairbanks, the conductor, lounged comfortably in the cupola of his baby caboose watching fire shoot from the stack 20 cars ahead. Easing over the crest of Sluice Hill, scene of the Cascade picnics, they proceeded to drop cautiously the nine miles to Reeds Station. Something went haywire. Speed picked up. Conductor Fairbanks ceased to lounge, and with Brakeman Ardene Sweetster heeded the sudden call from ahead — loud, frantic howls for brakes. Their efforts were unavailing, and they descended Sluice Hill in record time, flicked through Perham Junction, flashed by Sanders, and smoked down the grade toward Reeds. Sweetster, his lantern bobbing crazily, was halfway down the train when it sailed through Reeds Station. Suddenly Fairbanks saw the lantern fly off into the darkness, and knew that Sweetster had gone with it.

Finally, in the grade at Devil's Elbow, the train stopped and a trembling crew hurried back to search for pieces of a brakeman. When a 10-minute hunt by flickering lanterns revealed no trace of dismembered portions, they spread their efforts farther afield and heard a groan. They finally located the badly battered brakeman far *under* the station platform!

Another time, a brakeman was riding a noc-



turnal log train, walking the wooden stiff-shackles that tied the logging trucks together. He slipped, and someone on the rear saw his lantern skywriting in the darkness. This time it was no runaway, and the train stopped to find the astonished fellow hugging the stiff-shackle, his body dragging along the ties. A shirt collar was the only stitch he managed to keep on.

Contrary to popular belief, these Tom Thumb engines and cars with their three-foot overhang balanced on the rails as well as standard gauge equipment, but occasionally something did behave a trifle queerly. For instance, one sunny afternoon No. 16 stopped near Madrid station on a curve of considerable elevation. While the crew members were squatting beside the tender surveying the cause of their delay, the engine suddenly began to lift up on one side, the wheels rising higher and higher off the rail. Then, slowly and quietly, she rolled over, flat on her side.

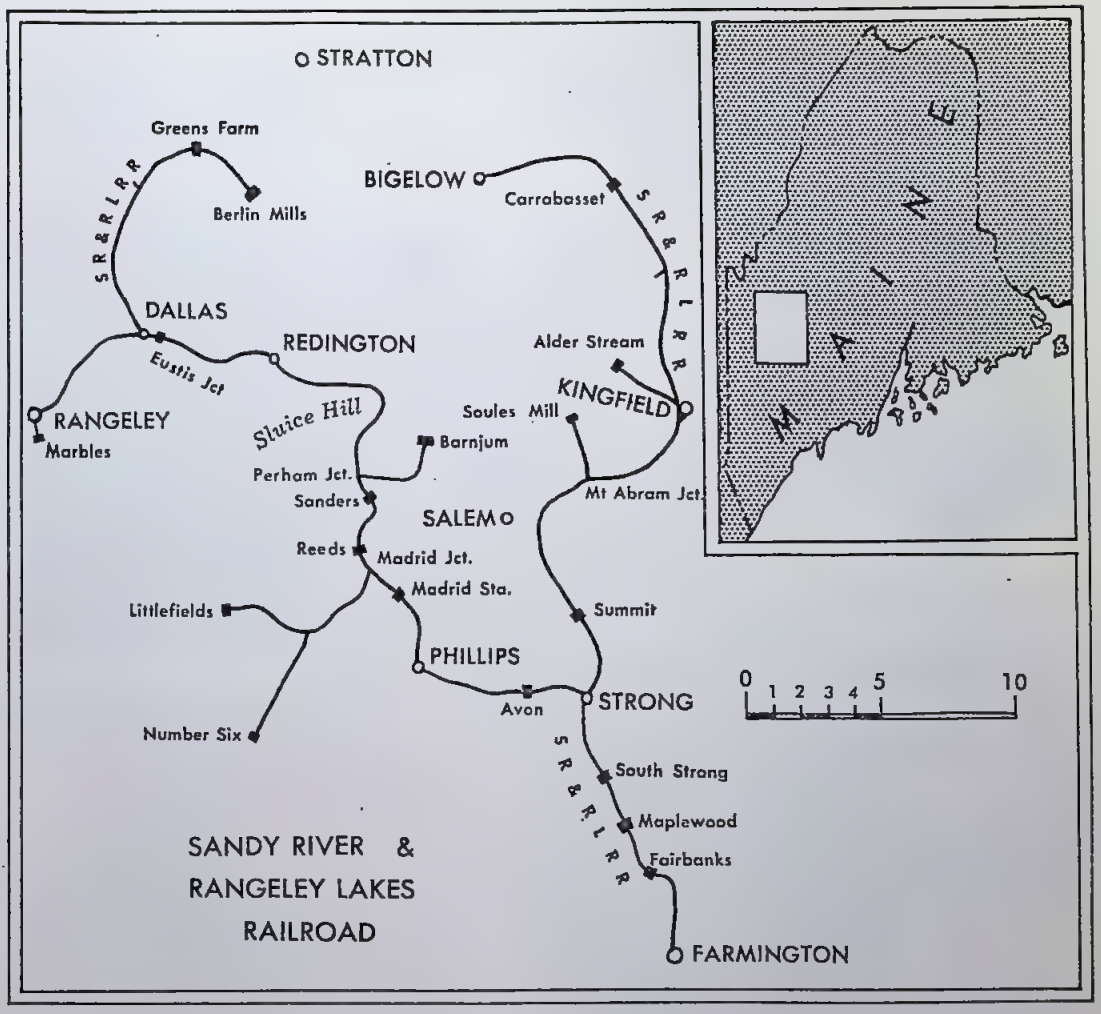
Other and more serious wrecks occurred, but it can be said in all truth that conditions being equal, train mile for train mile, these two-footers had no more trouble than their standard gauge cousins who sometimes also spill.

One day Engineer Guy Everett left Farmington behind schedule with every intention of bringing his weary passengers home for supper. He made the 11 miles to Strong in a couple of winks and, after a brief station stop, started rolling again. The No. 4 engine and the six or seven coaches took Strong trestle in one leap and ascended Cooks grade. But it was too good to last. Rounding a curve near the top, keeping close to mile-a-minute speed, the little engine dived for the woods and landed on her back with the string of varnished buggies capsizing along behind her. You can still see the pile of coal that spilled from her tender near the abandoned grade.

Maine's winter snow has added other chapters to narrow gauge history. The little four-wheel flangers rode like jumping beans at best but in their less sane moments might somersault over the ties or sail majestically out over the tree tops. Should an unwary operator fail to lift the flangers before contacting a road crossing, he might have a half-mile walk to get back to the railroad. The little wedge plows also often went off the track and more than one revenue dollar has been spent hauling a truant snowplow back up the mountain

Perhaps an early F&M train holds the record for indecision. Leaving Strong one snowy night with several freight cars, a baggage car of horses, and a coach containing a few passengers, it was near Stubbs Meadow when the going got so bad it had to return to Strong and set off the freight cars. Next time it was nearly to Hillside, when it backed again to set off the horses. By now it was several hours late. Striking out once more with the coach and hungry travelers, it bogged down in the wilds of Salem for the night. Rescuers arrived next day and found the snow higher than the top of the coach. After shovelers had dug the train out a plank was laid from bank to bank, and the train completely passed under.

Franklin County had a fine crop of jokers!



There was the time when some practical humorist (Ed West, if I remember rightly) trigged all six of No. 15's drivers as she waited in a stall at Phillips. When Engineer Chris Boston climbed aboard, started the air pump, filled his lubricator, and cracked the throttle, nothing happened. He inched it out some more. Still nothing happened. Impatiently he widened the throttle and all kinds of things happened at once: the engine leaped ahead, rose up, teetered crazily, only to noisily crash into the ashpit.

Along with everything else, the narrow gauge was plagued with fires. I believe every enginehouse on the road burned at one time or another. The worst of these was probably when the big 10 stall brick house at Phillips went up a few years ago, burning every engine in it except little No. 6, which they managed to save. When the smoke cleared away No. 6 and big No. 15 were the only engines in Phillips, and the road was filled with drifting snow.

No. 15 nosed onto a snowplow to clear the line for the morning passenger which would be hauled by the Portland Forney. Down below Strong, No. 15 broke a driver axle leaving No. 6 struggling in the snow. It was long after the standard gauge had left town that the morning passenger reached Farmington that day.

High water was another hunk of trouble. Take the time that Ed West was breezing along the shores of a swamp; suddenly his little engine wobbled a bit, careened, and dived for the bog and Ed found himself neck-deep in water with an amphibious train. Beavers had plugged the outlet causing the water to back up.

Perhaps one of the screwiest of these slim

gauge misadventures was when Conductor Fairbanks, of log-train fame, and Engineer Fred Leavett had No. 20 engine on the Madrid road. It was winter, and snow was up to the running boards. Fred nursed his little Baldwin with parental understanding, but finally it looked as if the jig was up. They would back up and try to buck it, only to stall again before they'd gained a hundred feet. Fred grew impatient.

"I'm going to shovel her out!" he barked.

Bending to coal scoops the boys dug down to the rail, or where the rail should have been, but none could they find. Further investigation disclosed they hadn't been near one for a half hour but had been sawing back and forth over frozen ground! As a sequel to the story, an engine was sent from Phillips to help, but in the ensuing blizzard she also bogged down. Before normalcy returned seven engines were there, all stuck in the snow.

Once the wide overhang of the cars did cause a wreck. It was in 1919 when the No. 24 was new. Through an error on the blueprints her tank was built 8′ - 4″ wide instead of 84 inches, and while backing over the Madrid Village bridge one morning with a string of pulpracks tied to her nose, the water sloshed in the tank, tipping it over. The engine toppled with it. The crash collapsed the bridge and half the train piled into the gully below. No one was hurt, but only because Houdini was a fake compared to the Sandy River boys.

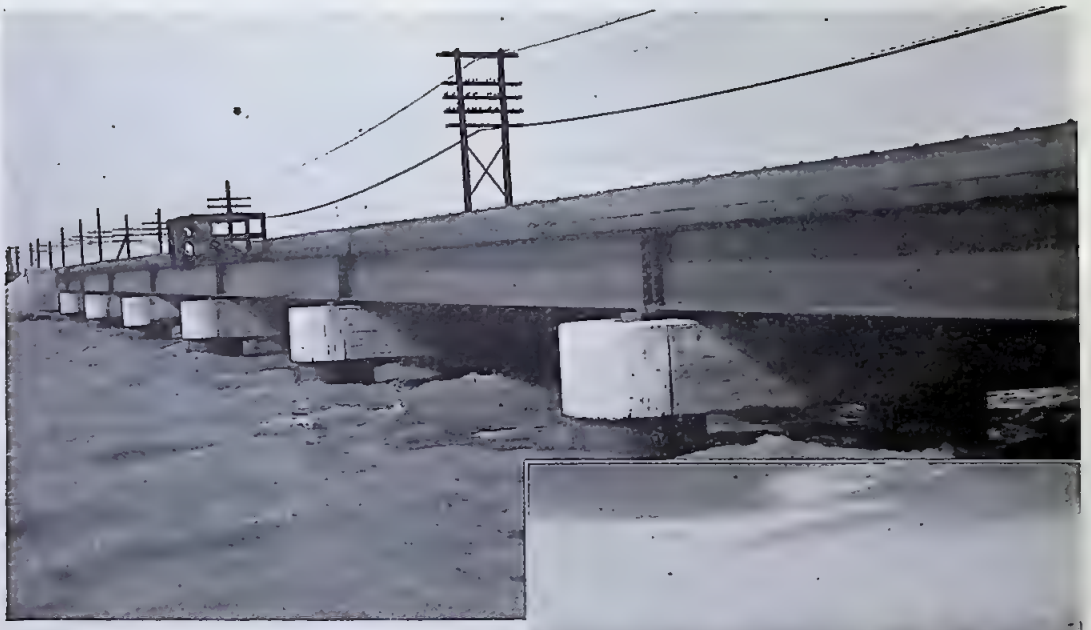
I've wondered what the two-footers would have looked like if the bold plans of their rooters had met with success. In the early days of this century, when the Franklin County roads were eyeing the rich Canadian traffic and the Wiscasset, Waterville & Farmington was likewise licking its chops, the two factions got together and agreed to doublehead. That was when the WW&F built from its own line at Windlow across to Farmington to tie up with the Sandy River roads. It planned to get up north this way, then, with pooled energy and influence, crash the gates of Quebec.

On the drawing boards were elegant sleeping cars and diners, bigger and better locomotives, automatic signals, rail-water routes, and everything else dear to the hearts of publicity men. What might have happened had this Canada-to-the-sea empire materialized will always be a matter of conjecture. But it flopped. From then on, and this was over 30 years ago, the two-footers headed downward.

In 1925 the track autos came. These gasoline buggies, so familiar to Franklin County visitors, were built in the Phillips shop and were designed by Master Mechanic Stinchfield. Each one replaced a steam passenger train, one man operating a car and its trailers. Although the track autos were good in the snow, steam jobs were reinstated when winter came. But business fell off. Passengers rode by auto and freight went by truck. The depression didn't help, and pulpwood business declined. In 1932 the old Phillips & Rangeley section was closed to everything but occasional trips with a converted Model T track auto.

A Strong doctor occasionally hired a Model T 15 to take him on a hurry call to Rangeley and the little bus would shove snow ahead of her radiator most of the 29 miles. One time Superintendent Vose, in a hurry to get from Redington to Phillips, dropped down the 16 miles of corkscrew curves in a flat 21 minutes, much to the consternation of his perspiring passengers. Incidentally, two of the Model T's now snooze in their own "roundhouse" at the Rockport, Md., home of Major Eric Sexton who also owns the elegant parlor car *Rangeley*, mementos of the once busy and colorful midget gauge railroad empire.

The SR&RL pegged out 11 years ago. Long since its shiny rails, its tricky engines and cars, and even its real estate have faded into the gathering twilight. No longer do the hills echo the chime whistles and purring exhausts, but along with the others it has faded into the shadow of night, the shadows of the two-foot gauge.



Over Sandusky Bay

The New York Central has completed a replacement of its Sandusky Bay trestle on the main line between Cleveland and Toledo. Photos show an over-all view of the line cutting across the arm of Lake Erie, the new steel and concrete trestle (top), and the old timber trestle (bottom). The work was done under heavy traffic and trains were single-tracked over the bay during the construction period.

Sand for the Rails of America

Getting sand on a slippery railhead is a king sized supply problem for the railroads

BY TRAINS STAFF

Sand, just plain ordinary sand, is one of the most expensive single items used in railroad operation. Yet without it train loading would be entirely dependent upon the weather, and with slippery rail trains would have to run at greatly reduced tonnage.

Good sand at the source of supply costs only 40 to 50 cents a ton, but by the time it is handled from the sand pits, delivered, dried, distributed to the engine terminals, placed in locomotive sandboxes, and laid on the rail its cost averages about $3 a ton, almost as much as the cost of soft coal for locomotive fuel on most railroads.

Good locomotive sand should be free of clay, loam and mica, any of which cause slipping if put on the rail. The best sand is pure silica of the size which will pass through a 14-mesh screen, with openings of 3/64". Wherever possible it is taken from pits along the right of way to save off-line hauling expense. The dunes along the shores of Lake Michigan furnish some of the best locomotive sand available in this country.

Sand is used not only in starting and sometimes in stopping, but also continually on steep grades with heavy trains, especially when the rail is wet or frosty. Some locomotives are even equipped with washers to remove the sand from the railhead after the locomotive driving wheels have passed. Otherwise the rough, sandy surface impedes the smooth rolling of the hundreds of freight car wheels which follow the locomotive.

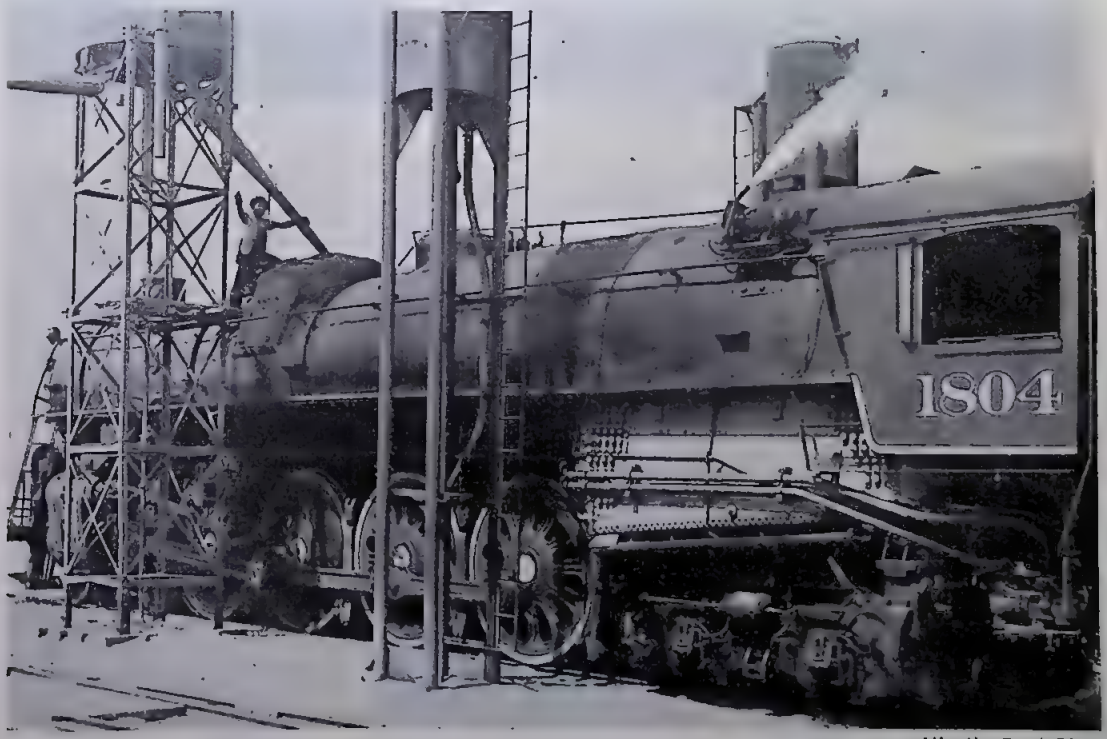
An air operated trap valve controls the passage of sand from the sandbox, usually atop the steam locomotive's boiler, to the delivery pipe in front of the drivers. The trap is a sharp elbow which stops gravity flow of sand. But when the engineer opens his sanding valve

C. A. Brown. Box 128, Rutledge, Pa.

A Baltimore & Ohio simple articulated locomotive climbing out of the Cheat River Valley to Terre Alta, W. Va., with a 60-car train pushed by two older articulateds. On this main line grade the right of way is white with sand.

Atlantic Coast Line.

Atlantic Coast Line locomotives get their daily supply of sand at a modern sanding station. Two types of tanks and spouts are used, the higher one for steam locomotives and the lower ones for Diesels which take sand through the side.



Atlantic Coast Line.

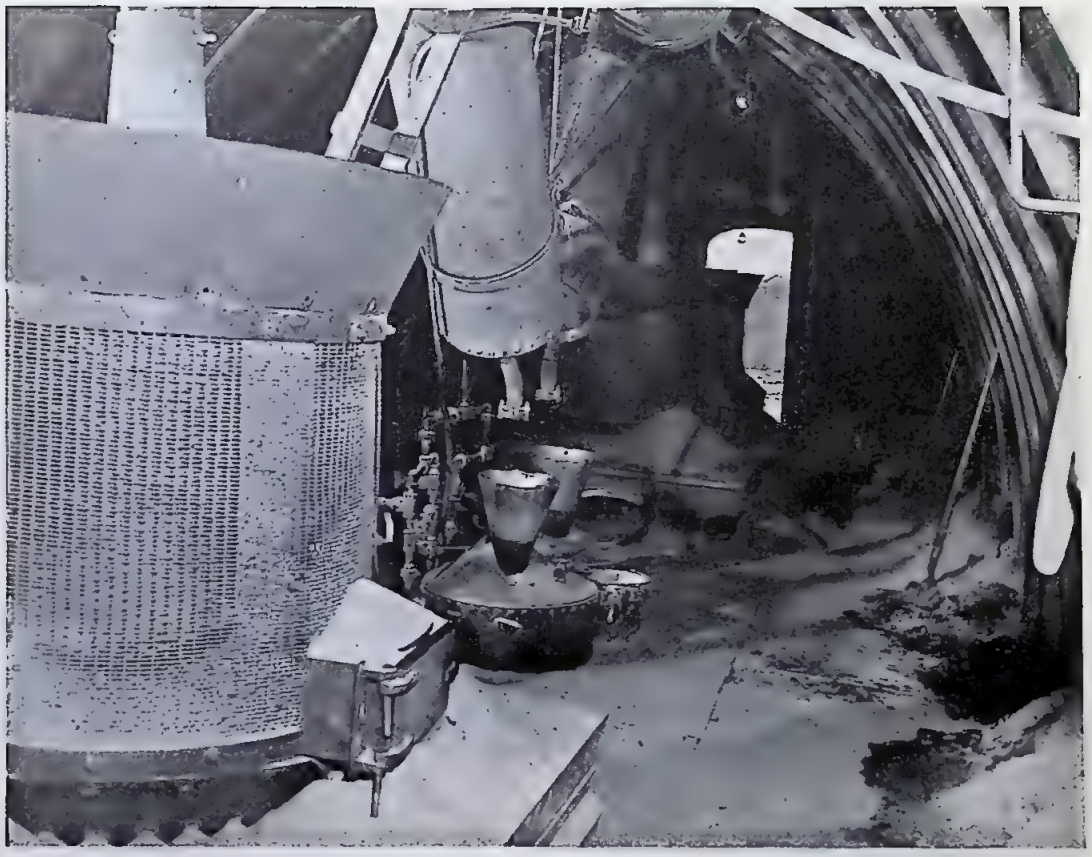
Eagle Iron Works.

C. P. Fox.

C. P. Fox.

Atlantic Coast Line.

Only the finest and cleanest of sand is used by the railroads. The sand starts from a sand pit (upper left) where sand is thoroughly screened and loaded into gondolas. After delivery at the engine terminal the hopper cars are backed up onto a trestle and dumped. Sand is then moved to the drying hoppers in the sand house (alongside trestle in upper right photo), dried by heat, and then dumped into a screening bin. From there it goes into a steel cylinder from which it is blown up a pipe, into the storage tank, and finally through the downspout into the locomotive sandboxes. In the over-all picture of Milwaukee Road yards at Milwaukee various sand handling facilities can be seen. In the right foreground is a storage pile of raw sand and to the left of it is a sand drying house. At far left is another sand drying house. Igloo sand house is on Atlantic Coast Line.



Atlantic Coast Line.

This is the interior of an igloo type sand drying house on the Atlantic Coast Line. The exterior is shown at bottom of opposite page. The concrete structure is so built that the drying equipment is immediately underneath the sand pile itself. The big screened drums are the driers. Sand pipes to storage tanks run underground; sand is blown by air pressure.

and blows a small jet of air into the trap the sand is blown through and down onto the rail. The engineer's valve is so built that as the sander is turned on a momentary jet of high pressure air is blown into the trap to dislodge any sand which may have become caked in the delivery pipe by moisture, snow or ice.

Sandboxes are located atop the boiler not only for purpose of gravity flow, but because the warmth of the boiler helps keep the sand dry. The capacity of steam locomotive sandboxes depends entirely upon the size of the locomotive and the type of service. On a Diesel locomotive a number of sandboxes are used because the length of the locomotive makes it impossible to locate one box for all the drivers.

The amount of sand delivered to the rail is important. Too much sand, while it prevents the locomotive from slipping, also requires considerably more power to roll the wheels over the sand. Railroads are continually working with their equipment to deliver the smallest amount of sand which will keep the locomotive from slipping. In the past ten years the technique of sanding has been much improved and the amount of sand correspondingly reduced. The general opinion is that from one to five pounds of sand per rail per minute is about the proper amount, and developments seem to favor the delivery of this amount of sand directly to each driver. In other words, an eight-coupled locomotive with traps set to deliver one pound of sand per minute per wheel would use eight pounds total sand per minute.

The delivery pipe extends to within 2½″ of the rail. It cannot get closer because no metal object may be mounted closer than 2½″ from the railhead, so some railroads use a short

piece of rubber hose to get the sand even closer to the rail.

Sand must, of course, be available at all terminals where locomotives are serviced. It is delivered to these yards in hopper cars and dumped into storage pits. From these pits it is distributed either by hand or by mechanical means to a sand drying house where it is dried in large hoppers. The sand house is warm and dry and so a favorite place for crews to gather and swap gossip of the road.

After drying the sand is screened to eliminate any foreign objects, and it is then blown into overhead hoppers from which it can be fed into the locomotive sandboxes.

The locomotive trailer truck booster engine is another sanding problem. The sand must be delivered through long pipes with little or no gravity flow. The booster engine is fast and powerful and would start slipping before the sand got under the trailer wheels. So a special sanding valve has been developed which is worked by the same air line which controls the air actuated control of the booster. Now when the engineer cuts in the booster he automatically cuts in the sand, unless he has previously used a cutout valve which independently shuts off the booster sand supply.

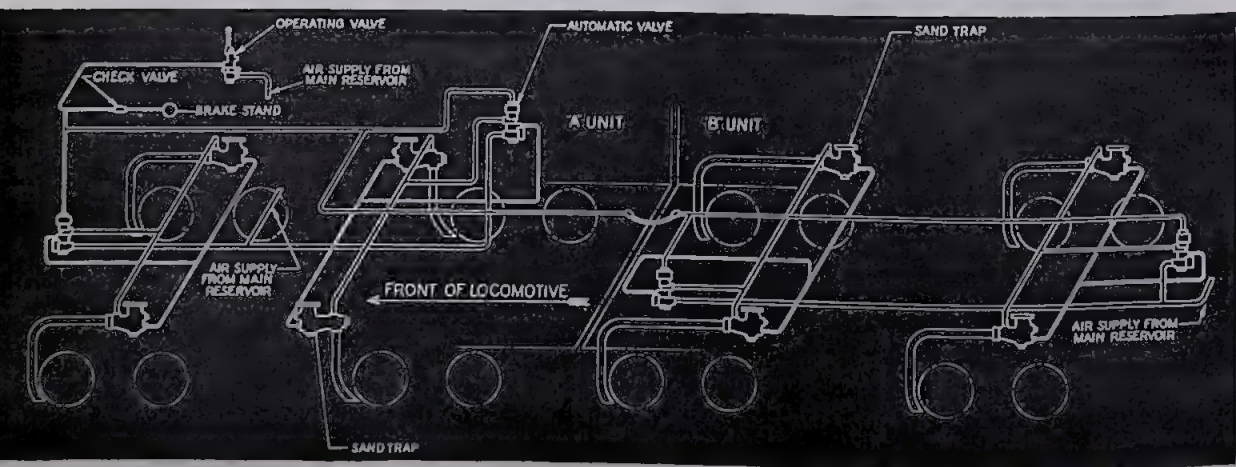
Another sand problem is caused by the tremendous size and width of the modern sandbox. Some of those big flat boxes straddled across boiler tops hold as much as three tons of sand. With a box of that size and shape the engineer might find all the sand used up from the portions over the sand outlets at each side of the box, but plenty of sand piled up in a cone at the middle of the box. When this condition started to develop there was nothing for the engineer to do but send the fireman out to rake sand down to the sides of the box, a hazardous chore while the train was in motion. So now big boxes have air nozzles inside directed to blow sand toward the sides.

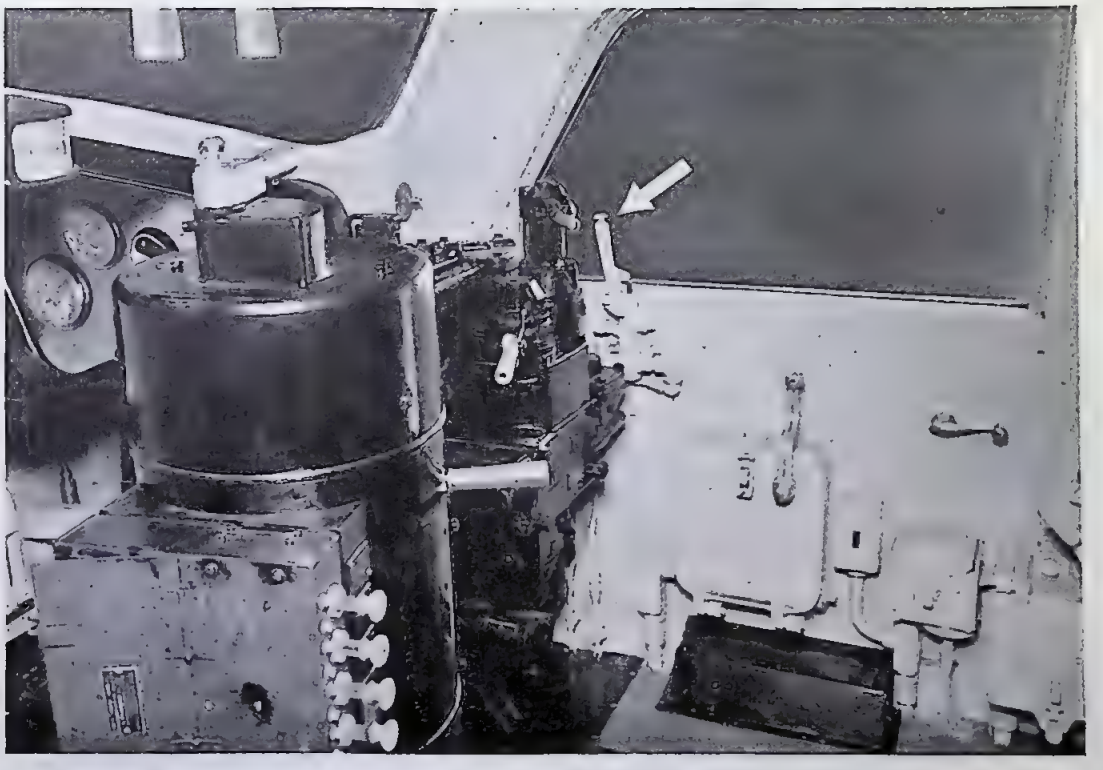
The use of sand is as old as the locomotive. In early days the locomotive carried a box of sand which could be spread by hand when starting the train or when negotiating a bad rail. Even today much the same method is used on the Darjeeling Himalayan Railway of India, where two small boys ride the pilot beam to spread sand in front of the engine.

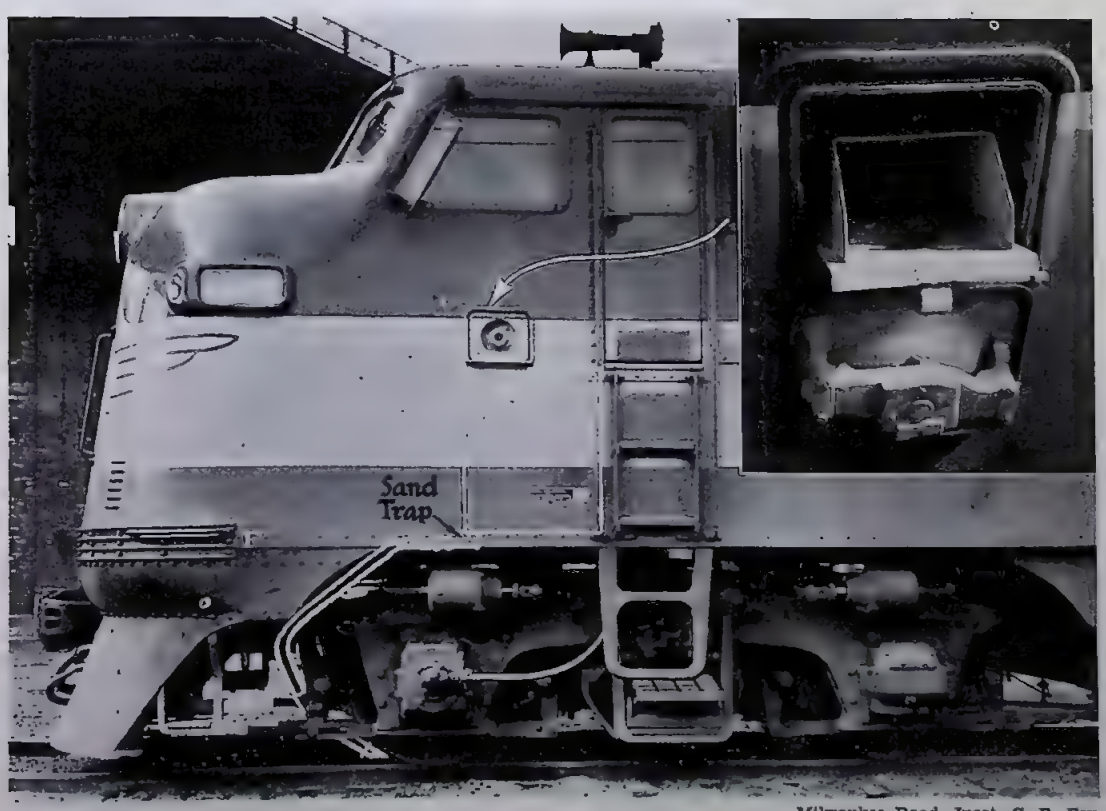
In most countries, however, it wasn't long after the locomotive acquired its horizontal boiler before sand domes were mounted in much the same boiler top position as today. The sand ran down to the rail by gravity, and it was shut off or turned on by a gate valve inside the sand dome, operated mechanically by a reach rod from the cab. The arrangement was crude, but it was adequate for the needs of the time.

However the science of locomotive engineering became more and more exact. It began to be firmly established that a locomotive on dry rail

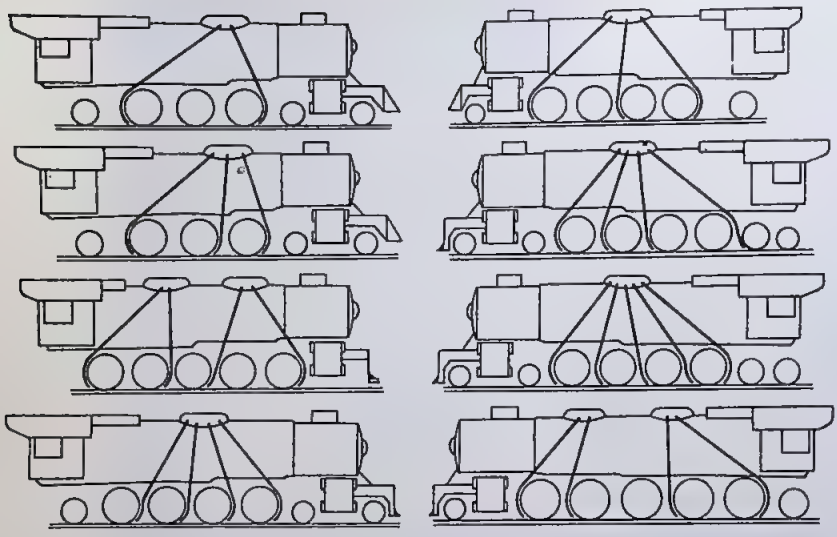
Sanding on Diesel-electric locomotives is complicated by the multiplicity of driving wheels. Individual sanding equipment is installed on each unit, controlled locally by an automatic air valve similar to the air brake actuating valve on each freight or passenger car. The engineer's control valve releases air to work these automatic control valves and they in turn release air to work the sand traps. Diagram below shows the arrangement of air lines and the photo at top of opposite page shows the engineer's sanding valve in a Diesel cab. The big drumlike affair is the main controller. Brake valves are between it and sanding valve.

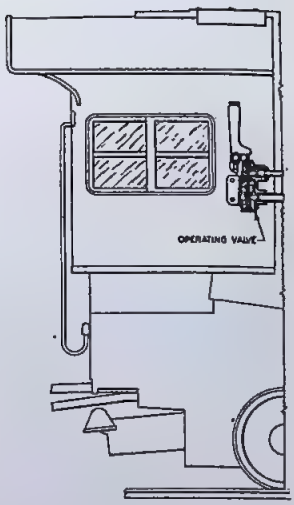






Milwaukee Road. Inset, C. P. Fox.



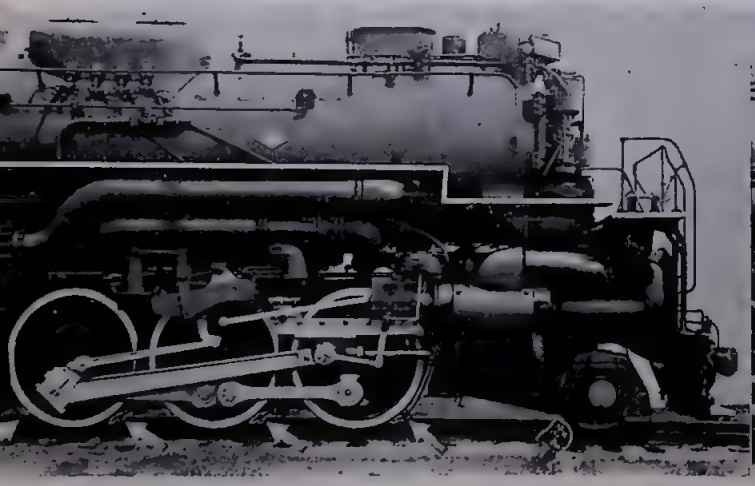


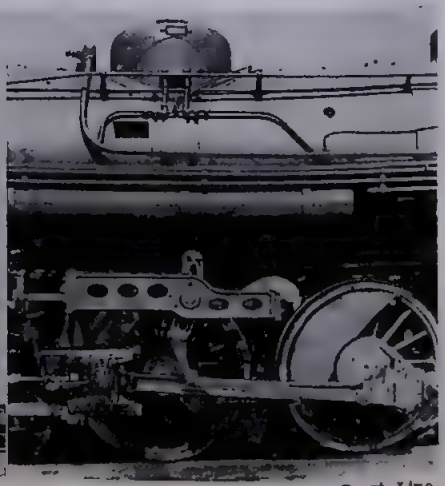
could exert a pull equal to one-fourth the weight on drivers, but that in wet weather the load was much less unless the sanding could be positively depended upon. It was at just about this stage of development that George Westinghouse invented the straight air brake, putting compressed air on most locomotives in a short time. Henry Leach took advantage of the air to work his newly created pneumatic sander by which a uniform flow of sand could be dependably put on the rails for the first time. All since then has been improvement and refinement. Sand isn't much, but the three big T's of railroading — time, tonnage and traction — all depend upon it.

The above diagrams show some of the possible combinations of sanding delivery pipes for various wheel arrangements. Type of service as well as grade, weather conditions, and other factors determine how sand is applied.

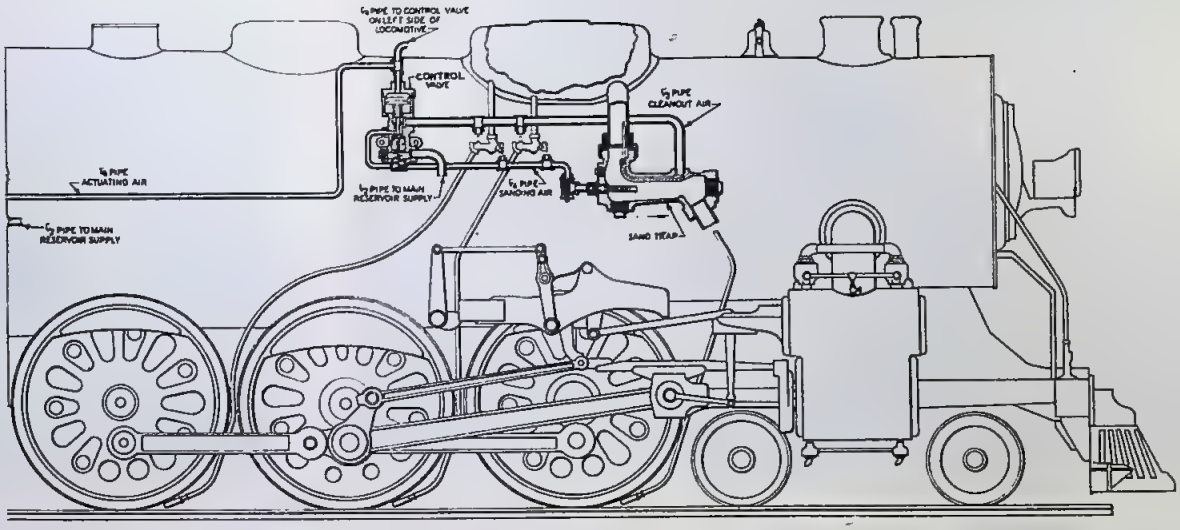
Diagram, above right, shows a complete sanding layout for a typical Pacific type locomotive. The control valve automatically puts a high pressure jet of cleaning air into the pipe at the beginning and end of each operation.

Photos below show two typical sanding installations on C&O 2-6-6-6 and an Atlantic Coast Line 4-6-2. Boston & Albany Berkshire, on opposite page, is using plenty of sand trying to get under way with a long and heavy freight at Auburn near Worcester, Mass.





Atlantic Coast Line.



H. F. Harvey, 65 Olean St., Worcester, Mass.

Chicago & Eastern Illinois.

Paul Ellenberger.

The Chicago Line

Typical of the aggressive 912-mile Chicago & Eastern Illinois is the spunky name Zipper on its crack day train between Chicago and St. Louis. Typical also is the fact that C&EI will have two new streamliners in service late this year. They will be short daytime coach trains, designed to give a high-class service to the many small cities and towns in eastern Illinois and southwestern Indiana along C&EI main lines. Many another small road, if it had its feet solidly imbedded in coal traffic like C&EI, would forget local passenger service, but to this road the local train is the best form of advertising, and besides the new Chicago Liners are expected to make money.

One new train, the *Whippoorwill*, will round trip daily between Chicago and Evansville, Ind., Ohio river crossing of the Dixie Route to Florida, of which C&EI is the northern leg. The *Meadowlark* will run a daily round trip between Chicago and Marion, Ill., 9000-population mining center on the line to Thebes, where C&EI crosses the Mississippi to connect with Cotton Belt and MoPac.

Photos show typical prewar C&EI trains, including the streamlined *Dixie Flagler* to Florida. Station scene is in Chicago's Dearborn Station where East Coast meets West Coast. Engine 1008 has been stripped of its streamlined shrouding.

8119 Princeton Ave., Chicago, Ill.

S. D. Warner, Danville, Ill.

Chicago & Eastern Illinois.

FILLING THE BIGGEST LUMBER ORDER ON RECORD

"TIMBER!" A forest giant crashes. The song of the saw and the ring of the axe are heard throughout a third of the nation. It is the background music for a million and a half stalwart woodsmen who are striving to fill an unprecedented demand for timber and timber products.

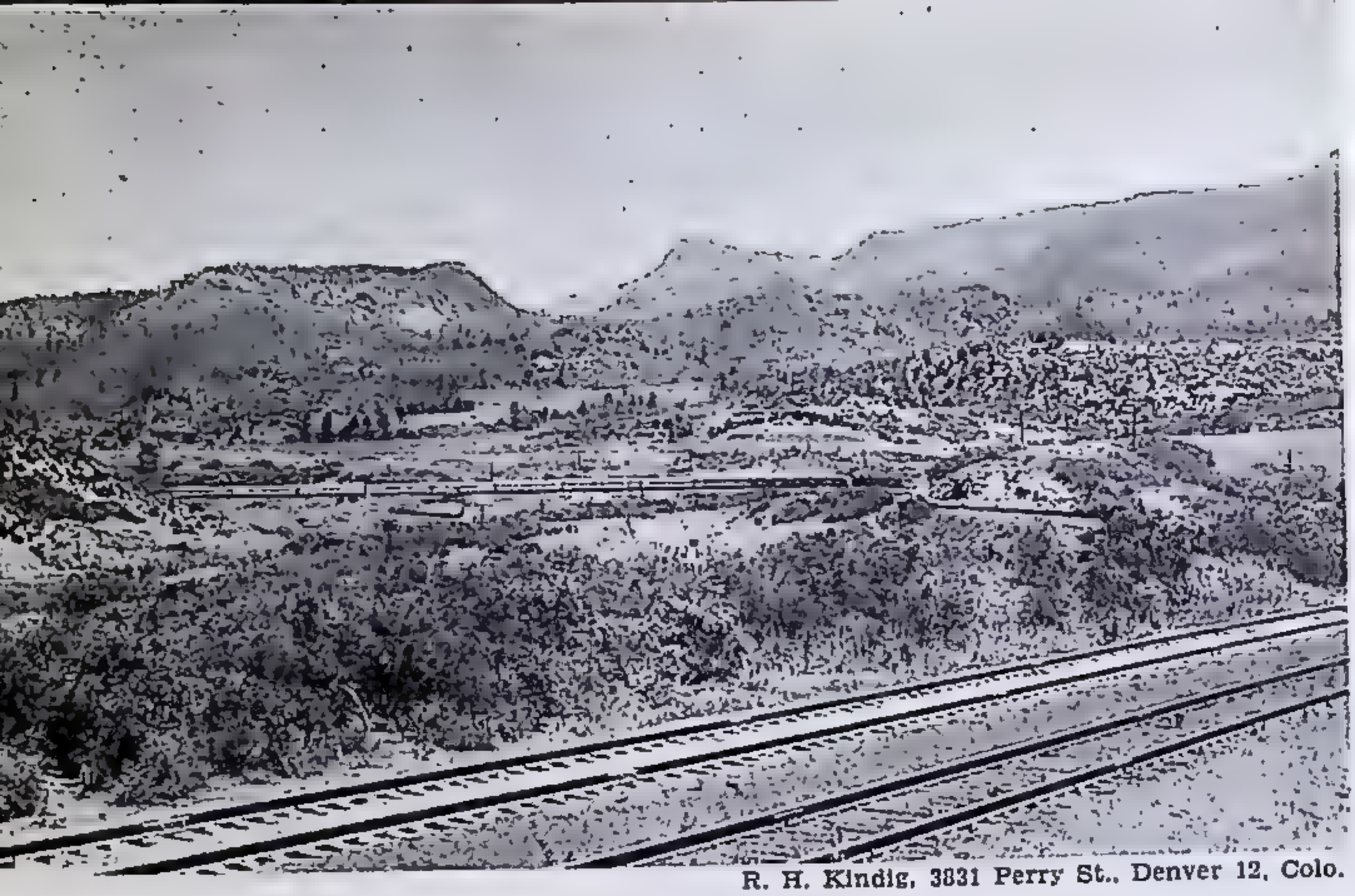
All over America the cry is for "Homes!" And that means joists, shingles, lath, flooring, siding, plywood. But, in addition, ceaseless research has developed more than 4,500 new products that have their origin in wood . . . as varied as nail polish and paper, plastics and linoleum, rayon and fertilizer, dyes and soaps. For a hundred years, the Pennsylvania Railroad has been carrying this basic commodity to mill and market—and, these days, carrying it for *less than a cent a ton per mile.* It is one of our biggest jobs. And we are large users as well. Our tracks rest on a hundred million dollars' worth of crossties. Thousands of feet of plywood line our box cars.

As we enter our second century in 1946, we salute the giant industry represented by men with axes and saws . . . and shall continue to do our best to serve it economically and efficiently.

PENNSYLVANIA RAILROAD

1846 *1946*

ONE HUNDRED YEARS OF TRANSPORTATION PROGRESS



R. H. Kindig, 3831 Perry St., Denver 12, Colo.

Raton Panorama

Heavy traffic pounds across the Colorado-New Mexico border in a wonderful and historic setting

Preston George, 1229 N. Hudson St., Altus, Okla.

Preston George.

Examine the profile of the Atchison, Topeka & Santa Fe main line from Chicago to Los Angeles in the "Official Guide" and you will notice a great contrast between the east and west halves of the line. East, the track is fast and easy going. The two twice a week streamliners, *El Capitan* and *Super Chief*, roll across this prairie land at an average speed of 66 miles an hour including stops. West, the average speed drops down to 50 because of many summits with steep grades on their flanks which confront the trains. The highest of these is Raton Pass, located smack on the New Mexico state line and just midway from Lakes to Coast. It is the steepest grade on any transcontinental main line.

Much of Santa Fe's freight runs by a better route through a less developed country to the south, but the crack passenger trains and a lot of freights use the Pass.

The grade westbound starts at Trinidad, Colo., and runs for 15 miles south to the two summit tunnels at Wooten. It averages under two per cent but the stiffest parts near the summit are 3.5 per cent. Raton, N. Mex., is at a higher ele-

merely to pass over a spur of the on the old Santa Fe Trail. The Raton Pass is a historic high point point on the system at 7587 feet 3½ per cent grades to the highest modern Santa Fe must climb the east flank of the Rockies. These pictures taken near Wooten show the heavy power needed to move Santa Fe's crack passenger trains up the east grade toward the summit tunnel. Top left, the Super Chief in the distance with lava capped Fisher's Peak in the background. Right above, the Chief behind a 2-10-2 Santa Fe type and helped by an ex-N&W Mallet. Left, Super Chief close by. Right, El Capitan.

Preston George.

Preston George.

"We're grading right where the tunnel is going to be." Those were the words of Lewis Kingman as he and a small group of miners, ranchers, sheepmen and storekeepers shoveled earth at this point on a cold winter morning in 1878. The volunteer Santa Fe construction gang beat the rival Denver & Rio Grande in seizing the pass for all time by a mere 20 minutes. In a few months a switchback with six per cent grades took construction materials over the top. In a year the half-mile tunnel was finished and 30 years' later the traffic to the West Coast was so dense that a second was bored. From this point one can see through both tunnels at the same time. The Colorado-New Mexico line crosses midway between camera and tunnel.

vation than Trinidad, so the eastbound grade is seven miles long with a maximum of 3.3 per cent.

One or more helpers are needed on nearly all trains. Santa Fe type (2-10-2) and Mallet compound (2-8-8-2) engines are common in this service. They operate from either Trinidad or Raton, and are cut off at the summit. Here they receive orders to drift down toward either base station at 15 miles per hour, usually in coupled groups.

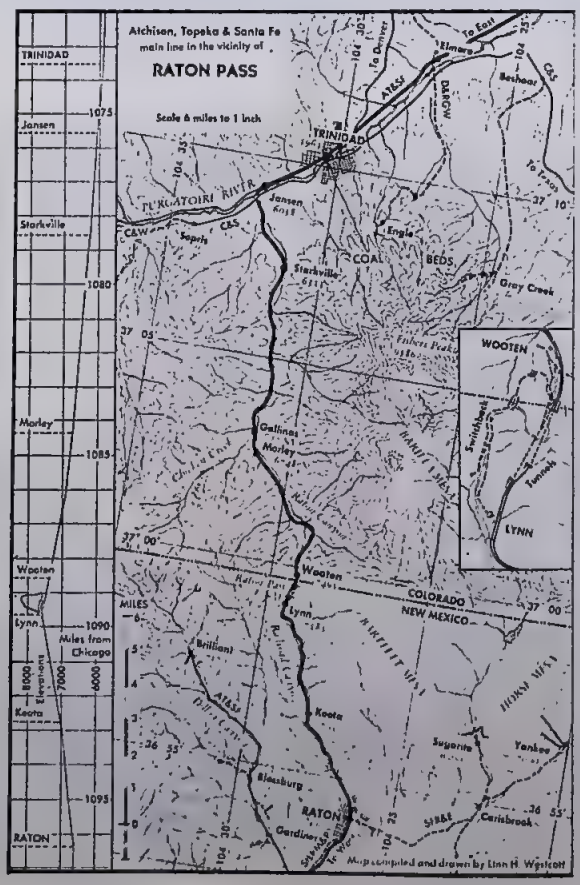
When more than one helper is needed on freight trains, the extra engines are pushers. A four engine train has a helper in front of the road engine and two pushers ahead of the caboose. If a single pusher is used it is coupled behind the caboose. Loaded trains run around 30 cars while empties may contain 60. Going downhill many brakemen ride the tops of cars.

In a typical day numerous heavy freight trains with three and four engines climb the grades spaced about half an hour apart. Two passengers, the *Chief* and the *California Limited* run through daily, while *El Capitan* and *Super Chief* pass by on Wednesdays and Sundays westbound, Wednesdays and Saturdays, eastbound.

The *Chief* frequently is an unusual spectacle. Its consist of some 15 cars includes several heavy weight Pullmans, three of them through cars from New York. Its locomotive on these days is a converted four unit freight Diesel. This new type motive power takes the very heavy train right up to the tunnels and down the other side without helper engines.

The track is doubled all the way over the pass and the tunnel summits are near Lynn. The older tunnel, built in 1879, is used eastbound. It is 2041 feet long and runs from a summit of 7621 feet elevation down a 1.9 per cent grade. The westbound tunnel, built in 1909, is 2678 feet long and climbs at 0.158 per cent to 7587 feet.

In 1878, before the railroad was built in Raton, Santa Fe's able en-



Preston George.

Many combinations of motive power are used at Raton. Here near Lynn, N. Mex., in April, 1944, the Chief had an ex-N&W 2-8-8-2 and a 2-10-2 Santa Fe type. In March this year it was headed with two 2-10-2's and a 4-8-4 below.

R. H. Kinaig.

Carl J. Bachmann, Litchfield Park, Ariz.

The Chief, eastward in pre-streamline days, starting out of Raton, N. Mex. Signals are painted for maximum visibility. Above, modern Chief near Lynn.

gineer, Albert Robinson, got wind that Rio Grande engineers were going south to claim Raton Pass. He sent Location Engineer Ray Morley down on a Rio Grande train to El Moro near Trinidad and had another engineer, Lewis Kingman, go north to the pass by horse from Cimmaron, N. Mex., on the chance Kingman would get there first.

Morley went up Raton Canyon to the toll house of Richens Wooten, a retired man-about-the-west better known as "Uncle Dick," to arrange permission to have the railroad pass through.

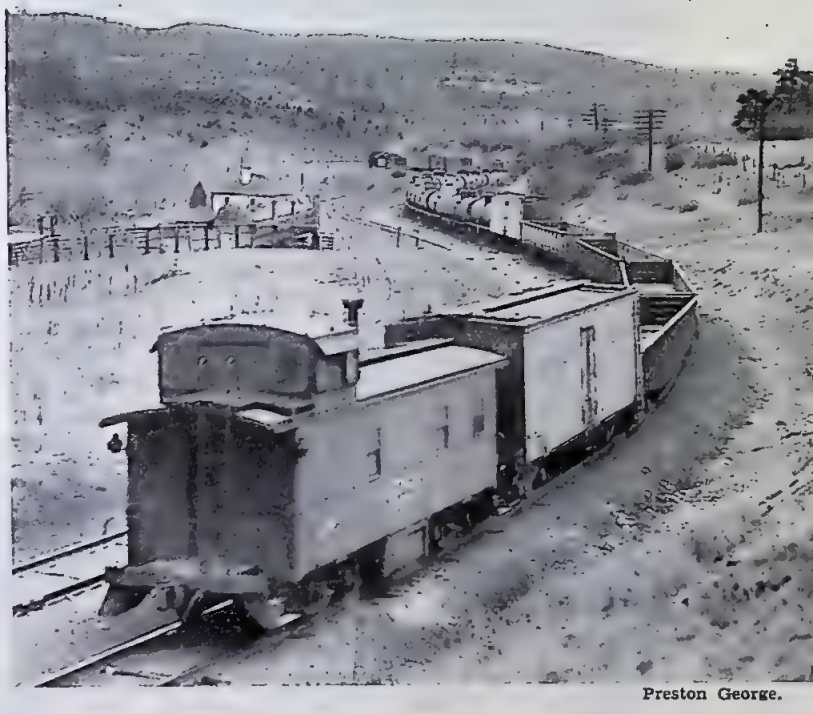
Morley soon received word that Kingman had started grading and in less than 20 minutes lights were seen down the canyon. It was the Rio Grande gang. When Morley reached them at Gallinas the Rio Grande boys realized they had lost the race but staked out and excavated a mock line up a different canyon in a sort of never give up spirit. Santa Fe won Raton for all time.

Uncle Dick was a favorite and when the Santa Fe had built a switchback to haul construction ma-

Preston George.

Preston George.

terials over the top of the pass at an elevation of 7726 feet, the six per cent grades required the building of the world's most powerful engine, a 2-8-0, which was promptly named "Uncle Dick." After the tunnel was completed Uncle Dick was used as a pusher. The only reminders of these heroes of the Santa Fe's past today are the station names: Wooten at the summit, Morley just below, and Kingman far away in Arizona.



Preston George.

Freight is the real problem over the pass. Above, going downhill over curves between Wooten and Morley. Below, two views of the same westbound train.

Preston George.

Carquinez Train Ferries

SP's Solano carried mainline trains across the bay for 51 years; the Contra Costa was the world's largest ferry

BY GEORGE W. HILTON

Until recent years the Southern Pacific was the most seagoing of American railroads. Its Morgan Line operated steamers from gulf ports to New York; its Mississippi River car ferries brought trains into New Orleans; and its San Francisco Bay ferries carried thousands of travelers between San Francisco and Oakland Pier. Prize of all the SP's marine operations, however, was the train ferry service across Carquinez Strait on the Oakland-Sacramento sector of the Overland Route.

Carquinez Strait is a long, wide arm of San Francisco Bay which lies precisely across the direct route between Sacramento and Oakland. When the Central Pacific Railroad began running into Oakland, it avoided the barrier by a roundabout line to the south through Stockton, Tracy, and Livermore Pass. The Western Pacific also built its line in this roundabout way. As an alternative, SP also had a route from Sacramento to Vallejo, at the north end of San Francisco Bay near the mouth of Carquinez Strait. The southern route was so badly handicapped by the grades of Livermore Pass and the northern line ended so far from San Francisco that as traffic increased a new route became imperative.

The Central Pacific's management decided in 1875 to build a bridge from Benicia, on the Vallejo Line, across the strait to connect with a new line running 27 miles along the bay shore to Oakland. Preliminary soundings were made and the bridge doubtless would have been built except that A. J. Stevens, brilliant master mechanic of the Central Pacific, persuaded Leland Stanford that a giant car ferry capable of moving a long train in a single trip could be placed in service in a fraction of the time required to build a mile-long bridge. He argued that the ferry could be built and maintained for vastly less money than the bridge. Stevens, long the designer of Central Pacific locomotives, began in 1876 to design the world's largest ferry boat. Its engines and metal parts were fabricated in the CP's Sacramento shops and transported to Benicia, where the ship itself was built.

The ferry "Solano" emerged in 1879 as one of the most unusual ships ever constructed. It was 424 feet long, shaped like a scow, and propelled by side-mounted paddle wheels. These wheels were staggered, one placed eight feet before and one eight feet behind the center of the ship. Each wheel was independently operated by a reciprocating engine located in a tall, narrow machinery compartment in the center of the ferry. The boilers were placed at the sides of the deck so as not to interfere with the space used by the four railroad tracks which ran the length of the hull. A pilot house rested on a steel bridge over the tracks at either end.

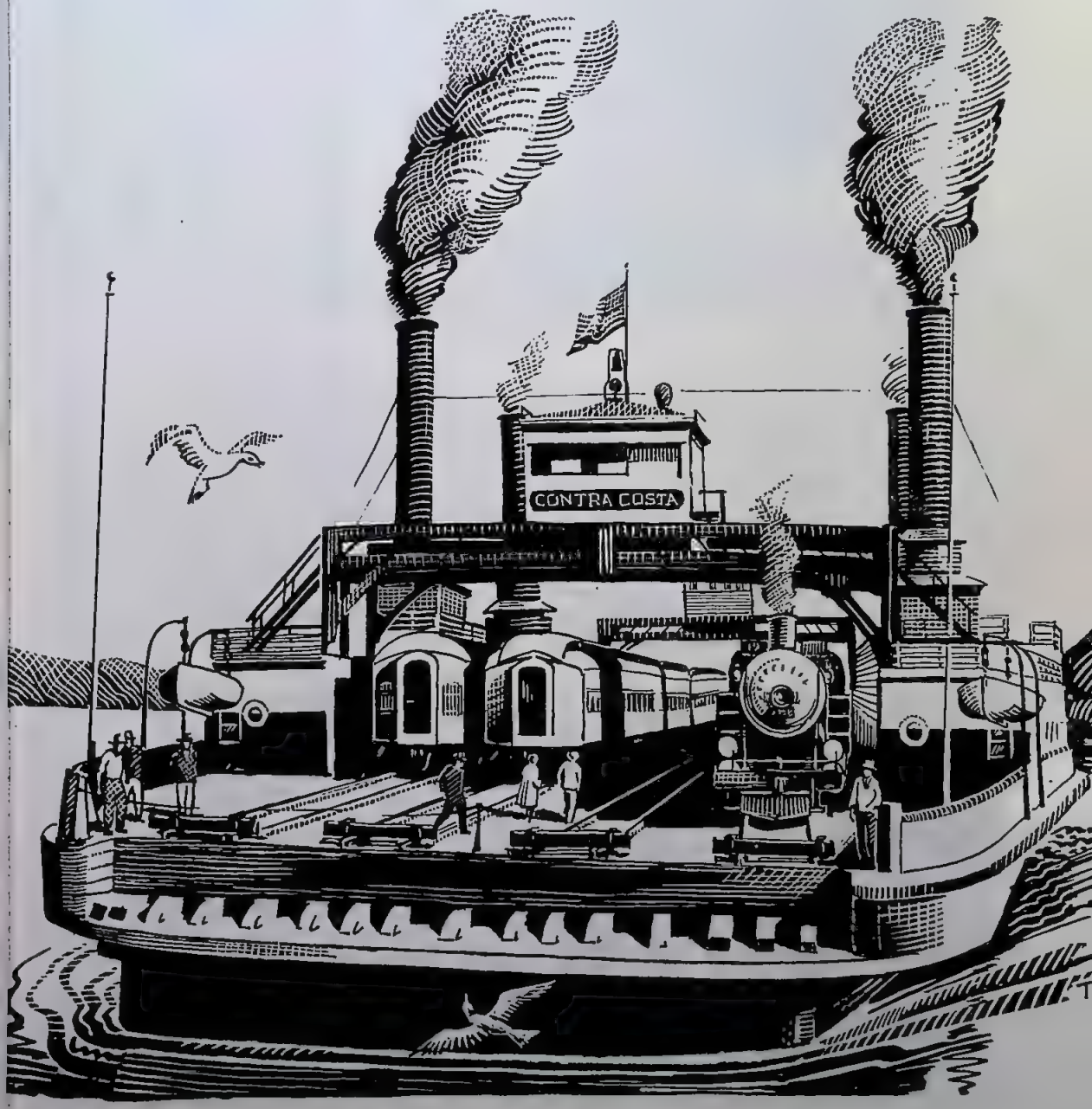
The "Solano" entered service on December 28, 1879, and bore the brunt of Southern Pacific Overland and Shasta Route traffic alone until a very similar but even larger ferry, the "Contra Costa," joined it in 1915. The "Contra Costa" was probably the largest ferry boat in dimensions and capacity ever built. It was 430 feet long, 66½ feet wide and 18½ feet deep. It cost, new, $400,000. In superstructure and means of propulsion, it was almost identical to the "Solano." Because of the tremendous strains to which it was subjected, it was built of thick Oregon pine. This gave it remarkable flexibility under unevenly placed loads. The hull of the "Contra Costa" alone contained over two million feet of lumber.

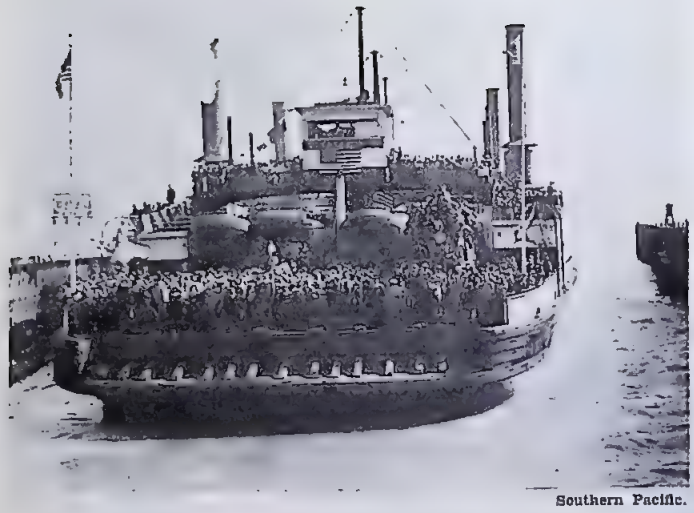
Both ships were equipped with a unique steering arrangement. Being double ended, each one had four rudders at each prow controlled by a hydraulic steering gear actuated by a special steam engine and pump. This gear, developed by Stevens, combined with the independently driven side wheels, made the big ships instantly responsive to the slightest movement of the pilot's wheel.

Maneuverability was of the utmost importance. The currents of Carquinez Strait are swift

and treacherous and the channel is shallow and rock-filled. The ferries operated nearly at right angles to the current and were in perpetual danger of being swept out of their course into beds of submerged rocks. This happened so frequently that special provision was made for the speedy replacement of damaged rudders. By removing a pin, any of the eight rudders could be released to sink to the bottom of the strait and a new one could be fitted in place from above, all in the space of about 30 minutes. Piles of spare rudders were maintained at both terminals, Benicia and Port Costa.

Quick repair work contributed to the good on-time performances of the ferries. Little time was ever lost. Although the trip from shore to shore took only eight minutes, train schedules allowed 25 minutes to provide for breaking and



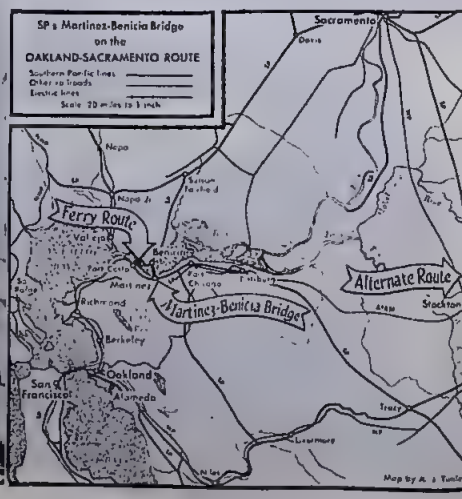


Southern Pacific.

The 51-year-old Solano, one of the largest ferry boats in the world, made its final trip November 30, 1930, carrying celebrants for the official opening of the nearly $10 million structure spanning Suisun Bay. Right, the bridge looking from the east with the City of San Francisco in a prewar consist. Below (left), deck view of "Solano"; (right) SP train coming into Oakland.

remaking the consist at the docks. The "Contra Costa's" capacity was 36 freight cars and two locomotives or 17 passenger cars and three locomotives.

In operation a passenger train would pull into the yard at the dock to be broken into four sections by a switch engine. The road engine would crawl on board the ferry pulling the first few cars with it. The switcher would then fill up the other three tracks with the rest of the train. It sometimes went aboard itself behind the last few cars. Thus it usually happened that when two locomotives were aboard, the heaviest parts of the load rested at opposite corners of the ship. As a result, the ferry would settle, for instance, at the left front and right rear and rise at the right front and left rear. The soft wood of the ferry would groan as if in futile protest of this twisting strain. As soon as the ferry nosed into the slip across the strait the train would move off to be reassembled. The ferry rarely had to wait long for a

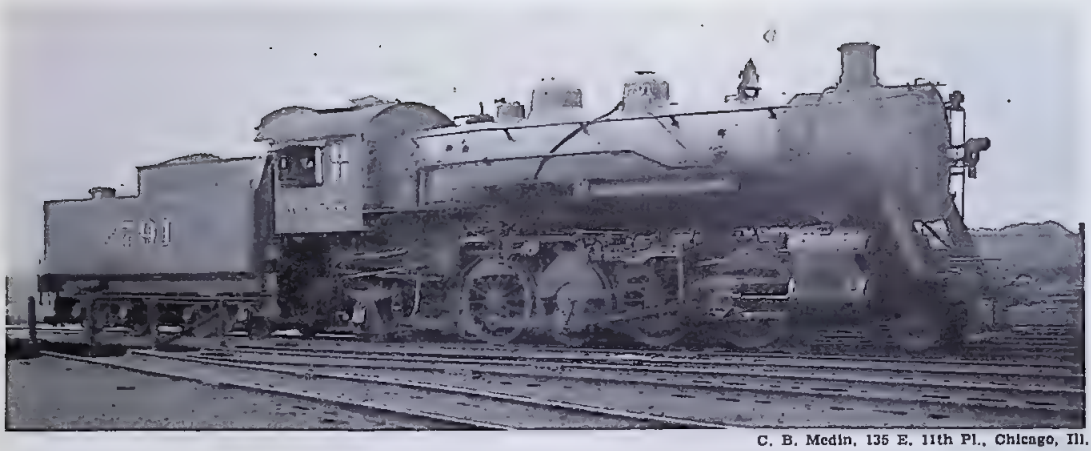


Southern Pacific.

return trip. The "Contra Costa" averaged 46 trips every 24 hours during the busy 1920's.

Train ferries are unique in being a part of railroad service whose chances for abandonment grow as their traffic increases. When traffic becomes heavy enough a bridge is built. In October, 1930, Southern Pacific placed a multi-span bridge in operation across the strait and ferry service was abandoned. It is interesting to speculate how many times the bridge might have been rebuilt or replaced had the original plans for bridging the strait been carried out in the 1870's. The present structure, with heavy load allowance, is one of the world's most modern as well as largest railroad bridges.

This bridge erased the ferry service, but the memory of the big ships remains. When they swept out of the ferry slips for the last time, they steamed off to join the engine *Jupiter*, Charlie Crocker's *Chinamen*, and the old Nevada narrow gauges in the brilliant past of western railroading.



C. B. Medin, 135 E. 11th Pl., Chicago, Ill.

Supercharged Mikados

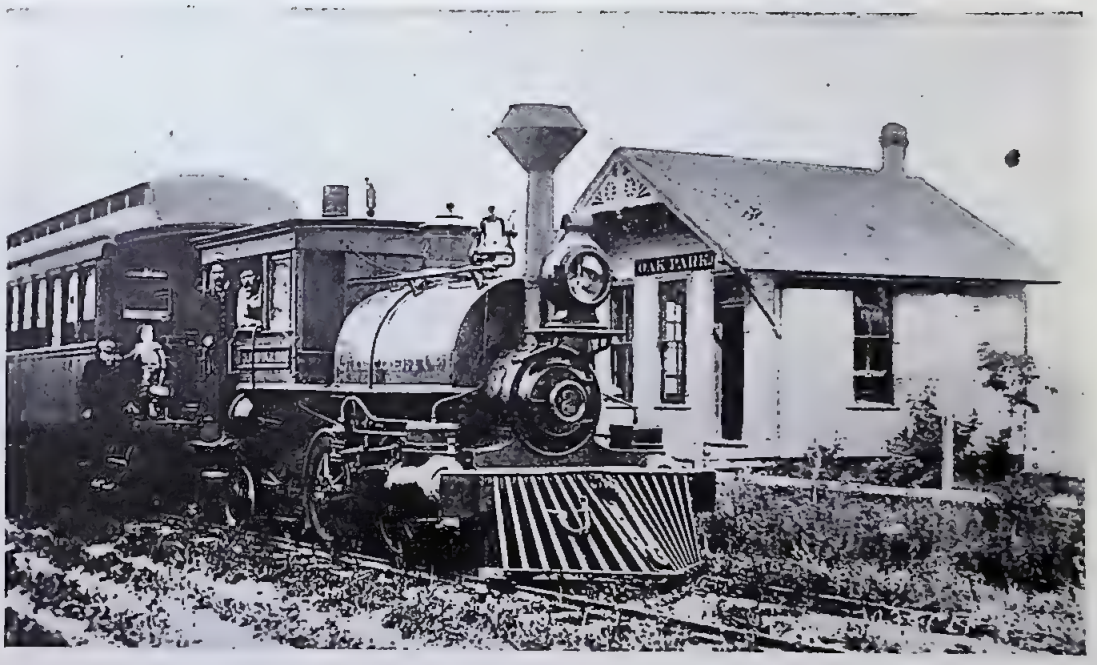
Steam locomotives are always especially designed for particular services, usually for the average trains and speeds of a certain route with its grades and curves. But occasionally even a single locomotive is tailor-made for an unusual type of service. These two Illinois Central Mikados were increased in tractive power to fit them for specific slow speed requirements. Both were standard locomotives of classes in wide use on the system, but in both cases they didn't quite fit the bill when they went to work on certain assignments.

The IC hauls heavy meat trains from South Omaha stockyards to Council Bluffs, partly over Union Pacific. The route has some grades and frequently these heavy transfer runs are stopped on the grades. Here's where high slow speed tractive effort is needed, and while maximum pull is limited by the weight on drivers, an increase in cylinder dimensions will give the locomotive a few more vitamins for its new job.

So the IC took No. 3791, one of a fleet of 32 switching Mikados, and fitted it with 27″ x 30″ cylinders, a bore two inches larger than on others of the class. Now with boiler pressure of 210 pounds and figuring 90 per cent of the pressure as effective, the engine develops 65,093 pounds tractive effort, enough to use all the available traction under even the most favorable rail conditions. The operation was so successful that a sister locomotive, No. 3770, was also converted.

The 3962 at bottom of page is a smaller Mikado, one of a series taken over when the IC leased the Vicksburg, Shreveport & Pacific in 1926. It is used in heavy switching work at Madison, Wis., and in order to give it more pep at slow speeds the cylinders were increased to 26″ x 28″, with the diameter four inches greater than the original. With 57″ drivers and boiler pressure of 220 pounds per square inch the engine now develops 65,749 pounds tractive effort at 90 per cent effective pressure. Since the weight on drivers is only 168,500 pounds the factor of adhesion is now reduced to 2.6, which means that on average rail the engine never can reach its full rating without wheel slippage. However the higher tractive effort comes in plenty handy at speeds of about 10 to 15 miles an hour, giving the engine more capacity for getting yard work done.

C. B. Medin.



Charles E. Fisher collection.

Chicago Suburban 0-4-2 and 2-6-0

In the '90's the Chicago & Northern Pacific, a consolidation of several short lines radiating from Chicago's Central Station, served as an eastern terminus for the Northern Pacific-Wisconsin Central system. Several suburban lines operated as part of the project with as many as 30 trains per day. One of these lines, the Chicago, Harlem & Batavia, was known as the "Dummy Line." CH&B No. 2, the *Oak Park,* appears to be of the 0-4-2 type and the engine was evidently built by H. K. Porter & Co. of Pittsburgh, Pa. From the grass or weed grown right of way, the little road does not appear to have been overburdened with traffic. No doubt she served well enough to get the commuters to and from Chicago offices. C&NP No. 24 has all the requirements for handling a good string of suburban "varnish." Built by the Brooks Works of Dunkirk, N. Y., in March of 1893, this locomotive, along with eight others, formed the exhibit of these works at the Chicago World's Fair of that year. Delivery of these nine engines was not effected until November and then the No. 24 with her 18" x 24" cylinders and 63" drivers proceeded to enter suburban service in the "Windy City."

Suburban engines were not a novelty to old Chicago; the Illinois Central, now electrified, had many of them and others will be found on the rosters of some of the other roads, too. While the equipment is heavier, and the engines are mostly standard designs, steam suburban service is still very important on the CB&Q, C&NW, Milw., C&WI and CRI&P.

Charles E. Fisher collection.

Race Train to Bowie

Special trackage used only during the racing season for specials

BY E. A. BEHR

Washington newspapers, in proper season, carry advertisements on their sport pages for the races at Bowie. The bold type states: "Train leaves Union Station at 12:35 p. m." Pennsylvania Railroad gets free publicity out of these billings for the Southern Maryland Agricultural Association which runs the track. Similar ads appear in the Wilmington, Baltimore and Philadelphia papers with earlier departing times.

In the huge station, ticket office windows 16 to 23 have all been diverted from their usual railroad, Pullman and government transportation requests to the race train business. Over each open window is a large sign reading:

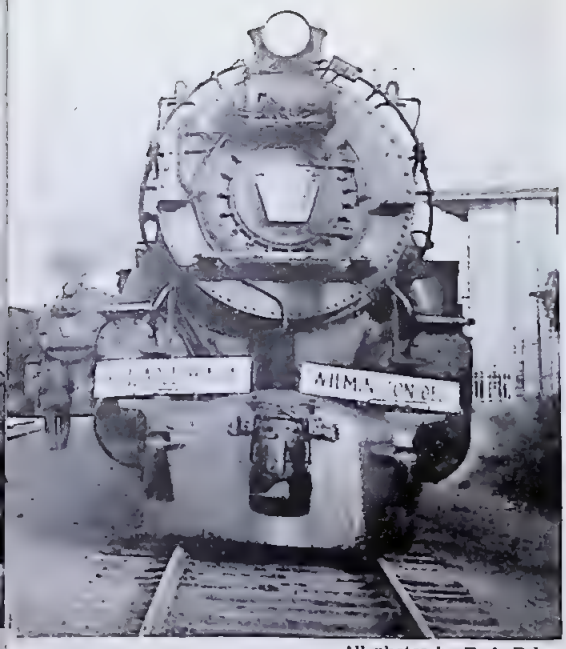
BOWIE
RACE TRACK TICKETS ONLY

Just before train time fast moving queues of sportsters move to the windows and on to the trains. Perhaps a quarter of the race goers use the Pennsy. Local bus competition gets some traffic but their fare is higher; most others drive their own cars. During the war Bowie was closed down because it could not be reached without using special trains, but fans still went to the Laurel and Delaware Park tracks both of which were near the B&O main line.

On a Saturday it's always a good idea to get to the track early; that is, an hour and a half or so before post time, otherwise you will be among the standing. Saturdays are the big crowd days at the track because of the half holiday many enjoy. Although the trains are advertised to leave at 12:35, it turns out that three specials are run on this Saturday, the first leaving about 11:50. Along about 11:15 a. m. two trains of seven coaches each are backed over the puzzle switches and into tracks 19 and 20 which are at the far right of the upper level of the station. At this end of the concourse the race crowd does not interfere with the other passengers boarding the Pennsylvania's New York and Western trains. Frequent race goers know which tracks the trains will leave on and others gather when the red and gold sign reading "Bowie Race Track" is hoisted at the gates.

The equipment is not exactly of the super de luxe type found on the *Trail Blazer;* in fact, one of the trains consists of cars that look like troop sleepers with benches installed in place of berths. These are the 59000 series. Each of the cars will seat about 70 people but usually 100 will jam themselves in even though the extra 30 could grab a seat on the second special. But the trip is short and most of the passengers are too busy studying the "form" or scratch sheets to be concerned about the benches or crowds. On this particular day the second train consists of two Southern Railroad coaches and five of the 59000's. K-4 Pacifics are on the head end. Electric power is not used because there is no overhead wire on the Bowie branch.

The train starts moving shortly before noon, after the gateman has counted enough passengers to make a full load, and some tardy souls manage to jump on after the train has moved several car lengths. Once the slip switches have been passed and the main line reached at Ivy City, the K-4 really starts stepping. With a regular train using this high-speed line every



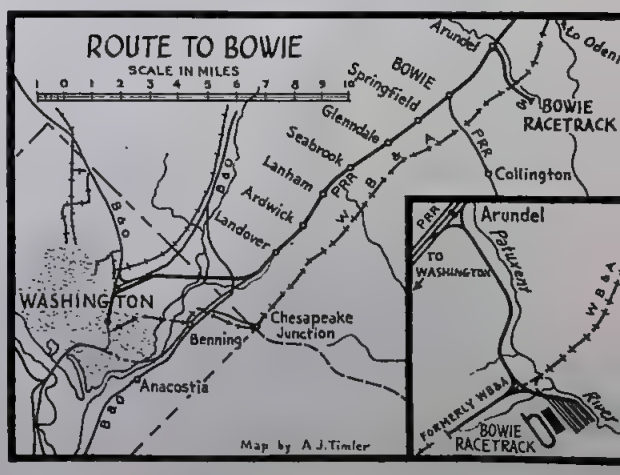
All photos by E. A. Behr.

Destination signs label waiting trains at the platforms. Even trainmen, left, try to outdo each other in picking the winners. In all there are eight platform tracks at Bowie.

few minutes, no slow moving can be tolerated. In a few minutes two sailors who have been craning their necks out the door of the rear car announce to their mates that the train did the last mile at 76 m. p. h. This pace is kept up until the town of Bowie, where one might logically assume the race track would be situated, is reached. However, the train moves over the interlocking to the outside freight main and again picks up speed until a turnout two miles up the line is neared. Another turnout from the freight main joins the track our train is on and forms a wye. Two signposts and a short paved platform reveal that this is Arundel. Hence the name "Del" on the telephone shanty at the junction of the two turnouts. There's a good bit of wheel screeching heard as the train leaves the main line, for the curve is sharp and downgrade. This race track branch is a "water level route" since it follows the south side of the Patuxent River all the way to the terminal. Part of a shallow, abandoned gravel pit forms the right of way and roadbed for the first few thousand feet. As a gradual turn to the right is entered another telephone shanty is passed and after a short straightaway a new signboard announces, "Reduce speed 20 m. p. h." The reason is soon apparent for there is a sharp curve to the left and a short bridge over a wayside stream. After another straight stretch of track, where the train resumes speed, another wye is met and a new bridge over Horsepen Branch is crossed. We have come about two miles from Arundel, when the water tower up ahead indicates that the race track is close at hand. Another curve to the left, accompanied by a grade, and the terminal and stands are now only a few feet away. Sometimes the K-4 can't pull the train up this last grade because the curve preceding the grade precludes a fast approach. When this happens a 2-8-0 which has been standing on the wye comes to the rescue as a pusher.

Our train comes in on track 2. Many of the passengers are champing at the bit, much like some of the more nervous thoroughbreds at the starting gate, and can't wait for the train to stop before they are on the ground running for the ticket windows. Readers who have attended a race meeting will remember the hordes of tipcard sellers around the entrance to the stands. Bowie is no exception; in fact, when each train comes in, the sellers rush down the platform shouting, "Get cha green cahd, got a good double today," or "had four winners yesterday." Shortly after the first Washington train arrives a sharp exhaust and whistle blast signals the arrival of a train from Baltimore. This performance is repeated again and again until eight trains have discharged their fares. On one Saturday 10 trains were scheduled, but there are only eight tracks at the terminal. As a result two trains that had discharged their passengers were run into the stub end of the wye so that all the specials could unload at the regular platforms.

While the fans are struggling through the crowds to the mutual windows before each race



to get those "tote" tickets on sure winners, the crews are busy turning their trains. Each engine backs its string of cars down the grade, around the wye, and then up into its platform track, ready for the crowd that will start streaming into the coaches after the seventh and eighth races. Again the Consolidation assists by pushing the trains back to the terminal.

Rail transportation to Bowie a decade ago was entirely a WB&A show. This electric line ran cars from Baltimore and Washington direct to the track over its own rails. When the stretch of track from the capital to the "monumental city" was abandoned in 1935, the steam railroads took over the service. One year it was provided by the B&O and then by the Pennsy. Since the tracks were not immediately torn up after discontinuance of operation by the electric line, the Pennsylvania special trains were able to use them from Odenton, where a connection was made with the main line to the race track. With operations confined to four weeks a year, though, maintenance expenses for this line, which paralleled the Pennsy main line, were too high, so the branch was constructed from Arundel, and all of the old WB&A abandoned except the segment now used as the stub end of the wye and the terminal at the race track. Nothing is left of the track to Baltimore except some rotting crossties, and a clearing through the pines.

No race meetings were held at Bowie from 1942 until 1946. In this period deferred maintenance resulted in considerable degradation of the roadbed and trackwork. Trees as much as two inches in diameter had grown between the rails, telephone poles and crossties were decayed, and bridges were unsafe for heavy locomotives. To put the branch into A-1 shape two new bridges of creosoted timbers were constructed, more than 1000 new crossties were placed, new switches were installed, the roadbed was reworked, new train operation signs were erected, and new telegraph wires strung.

The management of Bowie apparently appreciates the Pennsy's efforts in providing transportation since they have named a six furlong allowance race for fillies and mares "The Front Wye" after the turnaround tracks previously described. This brings to mind other bits of railroading connected with horses' names. Liberty Limited was a good handicap horse that won a number of big races in his day. At present Red Board and Through Train are two bangtails running at Eastern race tracks.

Apparently train crews are no different from the rest of us in their enthusiasm for horse racing inasmuch as several trainmen and enginemen from the specials can be seen in the crowd at the clubhouse turn. Of course steam must be kept up on the waiting locomotives so some firemen take trips back to their charges and "make with the shovel." Some of the enginemen even climb on top of the coal in the tender, where they can get a better view of the track, and yell their horse down the stretch.

Left to right. Track indicator calls out trains one at a time after the races. Horsepen Branch bridge, a sharp curve and a steep but short grade are just north of the platforms at Bowie. The platforms where trains wait are directly behind the grandstand. During the races trains are turned and backed in to their respective tracks ready for their departures.

All locomotives running into the terminal at the track are K-4's except the engine that brings down the early morning money train from Baltimore which is the Consolidation type, usually an H-9, that is used as the helper at the wye. The trains from Philadelphia are hauled by a GG-1 as far as Baltimore where the switch to the K-4 is made. In previous years, after electrification of the main line, the electric locomotives ran to Arundel with the specials where they were cut off and spotted on the eastbound freight main until ready to pull their trains on the return trip. The helper engine had the job of pulling the trains over the branch line. Since this procedure tied up the freight main for six or seven hours each day and several extra hands were needed at Arundel, the new arrangement for running K-4's all the way to Bowie was made.

Notwithstanding expenses of maintenance and of the many train movements just described, race trains are fairly profitable. On an average day about 1300 passengers come from both Baltimore and Washington and perhaps 700 will make the trip from Philadelphia. This represents revenues of about $6000 for one day's trains. The railroad also moves the horses, grain, feed, and construction materials. There are 24 days of racing at Bowie each year so the total would be around $144,000. Rainy or cold weather reduces the number of customers, but on Saturdays many more use the train than on other days of the week. Coaches that would otherwise be idle are used, but many extra employees are needed for train crews, switching and supervision. The expenses of new ties, rails, bridges renewed or strengthened to carry a K-4, new switches, and ballast all bite rather deeply into this year's receipts.

The crowd leaves the stands to board the trains either from the smoky end or in the usual manner. Destination signs are placed on the pilots to guide the passengers into the correct train, but some of the tipsy patrons, after celebrating their winnings with strong drink, even then have a time locating the correct track. On an embankment to the north of the lead to the terminal tracks is a yardmaster's house. Raising of an indicator sign with a track number gives the engineer the "go ahead." Two shorts on the whistle, a bit of sand, the crack of the exhaust and our train begins to move. In a moment the last red coach has slipped through the cut and disappeared around the curve on its way back to Washington.

The Eternal Railfan

At least two dozen electric fans were crowded up into the baggage compartment of the old wooden combine as it bounced its way along the road on a last time fan trip. Interurban photos were being freely passed around. As the car came onto a good straight piece of track the motorman pushed the controller handle against the peg, hung his knee over it, and turned to the anticipatory crowd. "Now if you fellows really want to see something," he said, taking an envelope of photos from his pocket, "take a look at these steam locomotives."

Creative Age Railroad Books

The first two of a new line of promising railroad books look good to Trains' reviewers

STEELWAYS OF NEW ENGLAND. By Alvin Fay Harlow, 461 pages, 6" x 8¼", illustrated with photographs and cuts. $4. Creative Age Press, Inc., 11 East 44th St., New York 17, N. Y.

The role of New Englanders in American railroad pioneering is clearly brought out in this fascinating, scholarly and colorful history. Apart from telling the story of New England railroad development Alvin Harlow's book very carefully goes into the economic need for railways in the northeastern states and the conditions in the times preceding the Iron Horse. Yankee ingenuity did much in fathering the steelways of the nation; it did even more in sending its exponents of railroads and its hard-headed executives all over the United States.

Men like Collis P. Huntington of the Southern Pacific, Cyrus K. Holliday who conceived the Santa Fe, and many of its later presidents from William B. Strong to Edward Payson Ripley, were born or began their railroading in New England. Henry B. Plant, builder of southern roads which at one time bore his name; James F. Joy, that able executive who rounded out the "Q," and Daniel Willard, much-loved president of the B&O, were all New Englanders.

The book gets a cumulative hold upon the reader and by the time the "Ghost Train and Ghost Road" is reached the story is more than likely to make you forget to go to dinner. It concerns the New York & New England Railroad, "the strangest, most loose-jointed, shambling, anomalous congeries of rails, with the most melodious name in all the six states." After its ultimate control by A. A. McLeod, "a plunger whose vision had not even a horizon," the ill-fated NY&NE was to become the Philadelphia & Reading's main line from the Quaker City to Boston. But the Reading's Poughkeepsie Bridge route had hardly begun to function when the system was plunged into bankruptcy and McLeod was summarily ousted from its management.

The "ghost" train in its all-white livery enjoyed tremendous popularity in its day. Now, however, its route through Middletown and Willimantic is for freight service only, and New York-to-Boston trains go along the almost gradeless coast line via Providence.

Harlow is at his best with "In the Land of the Pine and the Cranberry Bog"—a chapter on the Old Colony. Says he: "No vanished railroad in all New England seems to dwell quite so sweetly in the memories of those who knew it as the Old Colony. Its very name was a happy conception, a phrase hallowed by centuries of history and harking back to one of the most celebrated events in the chronicles of America: it invited the clustering about it of pleasant associations. Although its life was comparatively peaceful and unspectacular, it was notable in many ways. It fostered the most famous boat line that ever navigated our waters, it ran the longest-lived train in American railroad history, and the compact little 600-mile empire which it built in a corner of Massachusetts was one of the best managed and most definitely gilt-edged railroad properties on the continent."

The whole story of New England's railroad development from the New York State line to the Canadian border comes in this book. It is a big order, well executed and nicely integrated. Out of the melee of buying, leasing and bartering, emerge the Boston & Maine and the New York, New Haven & Hartford. In contrast the Boston & Albany and the Central Vermont remain stanchly independent, although controlled by outside interests.

It is fortunate that the publishers selected Alvin F. Harlow to do this book, the first of Creative Age's "Railroads of America" series. An authority on United States history, a writer who has a dozen standard works to his credit, and a keen student of railroad transportation, Harlow was by all odds the logical man for the job. There is much to be said for an author whose knowledge of railroading is matched by his understanding of general history. His is a railroad book which is first rate American history and top drawer railroading.—F. P. D. Jr.

HEADLIGHTS AND MARKERS. Edited by Frank P. Donovan Jr. and Robert Selph Henry. 406 pages, 6" x 9". $2.75. Creative Age Press, Inc., 11 E. 44th St., New York 17, N. Y.

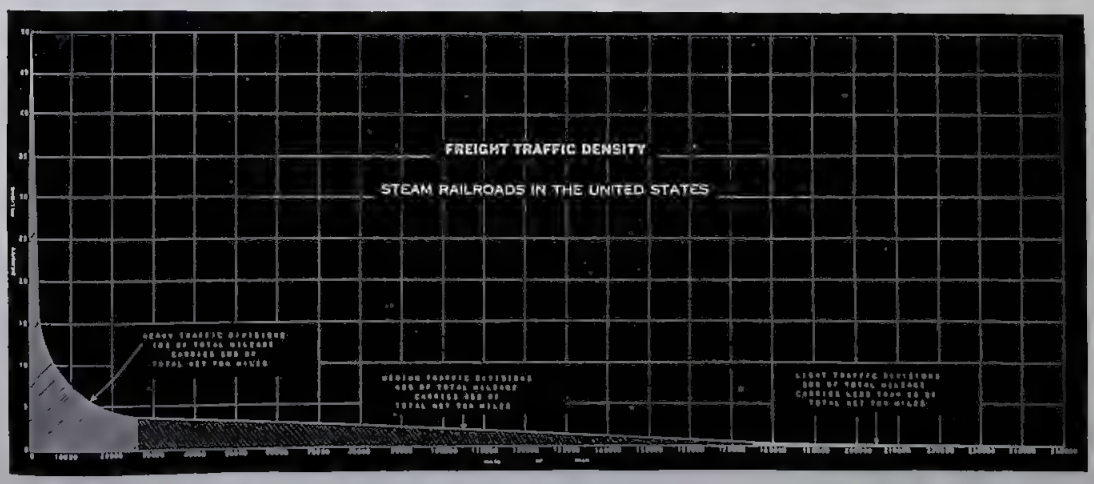
Remember the story by Doug Welch called "Mrs. Union Station?" It appeared in *The Saturday Evening Post* in 1937 and many's the time since then I've wished that I'd saved the story. It has more railroad humor per pica than has appeared in most railroad stories before or since. You'll find it starts on page 259 of "Headlights and Markers." To have that story in my possession is more than worth the price of the book. But there's a lot more.

The book, edited by Robert Henry, assistant to the president, Association of American Railroads, and Frank Donovan, research editor of TRAINS and formerly of the AAR, is a collection of the best fiction and factual railroad stories ever published. The stories range from Marquis James's "The Stolen Train," a tale of the locomotives *General* and *Texas* of Civil War fame, to Harry Bedwell's "Priority Special," a narrative about hospital trains in World War II.

Mere mention of the *Texas* and *General* story by Marquis James is not enough in any book review. There have been dozens of separate accounts, articles and stories about J. J. Andrews and his raiders who stole the *General* from under the noses of several hundred Confederate soldiers. Many of the items have been based more on fiction than on fact but James has written a factual story which reads like classical fiction. The 100-mile chase of the *General* by the *Texas* is, without question, one of the finest revelations of railroading during the Civil War and without being overly dramatic is packed with drama on every page.

William Wister Haines has written a story, "Remarks: None," which was originally published in *Atlantic Monthly*. The setting is in the Pennsylvania electrified territory. Haines, a former lineman on the PRR, knows his subject and when you read about Scarfe and Regan, the two men whose friendship recalls the parallel bond that existed between Dumas' Musketeers, you can't help but feel that the story shouldn't have ended in such a horrible manner.

"Headlights and Markers" opens with "The Yellow Mail Story," by Frank H. Spearman. In all there are 17 stories in this anthology. Harold Titus, John Alexander Hill, Thomas Nelson Page, Frank L. Packard, Cy Warman, Charles W. Tyler, Jesse Stuart, Octavus Roy Cohen and A. W. Somerville are the authors of those remaining works which cannot be commented on individually because of lack of space. The editors have made an excellent selection and are to be congratulated on bringing together so much fine railroad writing.—J. C. O'H.



Half the load uses only a tenth of the track

This chart, which is a part of the H. H. Copeland & Son Freight Traffic Density Service, emphasizes the large proportion of railroad mileage in the United States which is operating on a very slim freight traffic density. It shows that 30 per cent of our route mileage carries only 2 per cent of the freight traffic. At the other extreme 10 per cent of the mileage carries 50 per cent of the total net ton miles. Clearly the marginal 30 per cent of mileage is the portion of the railroad network which earns little or probably less than nothing for its owners, but which is maintained to provide railroad service to many points where it is needed as a public service. Much of this mileage is on branch lines which are quite often operated at a loss.

Meets All Trains

Springfield Terminal is the last of electric passenger lines in Vermont

BY GEORGE W. HILTON

Twenty years ago there was nothing unusual about the Springfield Terminal Railway. Electric lines came down out of the hills to meet steam railroads all over New England. Today the six-mile Springfield Terminal is a considerable curiosity. It is the only electric line left in New Hampshire and Vermont and one of the last of the once very common "meets-all-the-trains" trolley lines in the United States.

If the terminal's revenues came only from hauling passengers between the Boston & Maine's station in Charlestown, N. H., and the front steps of the Adnabrown Hotel in Springfield, Vt., it would long since have joined its brethren in the scrap market. A husky on-line freight organization has supported it for many years. The terminals winding right of way up the Black River Valley is the only conceivable railroad approach to Springfield, which is probably the most important of the industrial towns in Vermont.

Although freight trains operate on irregular schedule, customarily two cuts of about 10 cars each wander down the gorge every day to the Boston & Maine interchange. The run is so short that the Springfield Terminal does not use, or even own, a caboose. These freight trains not only make the terminal profitable, but make it a valuable feeder for its parent, the Boston & Maine.

Motive power for freight service consists of two Baldwin-Westinghouse steeple cab locomotives, built in 1923 and 1929. If anything should assure the Springfield Terminal immortality in the annals of American railroading, it is that, of its two locomotives, only one is equipped with multiple unit control. There is probably no piece of equipment within 300 miles that could be run in tandem with it.

A former express box motor, an open-platform line car, and a snowplow are now used in maintenance-of-way service. The snowplow is put to good use during the brutal winters.

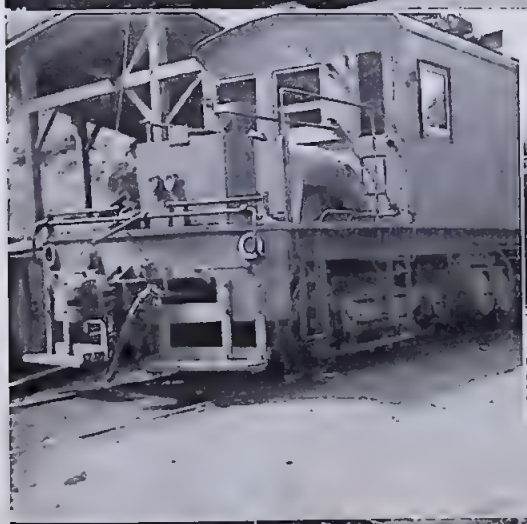
Passengers and an extensive head-end traffic are handled by three bright orange combines. The two steel cars, Nos. 16 and 17, are used for the seven round trips on week days and the five on Sundays. Their bodies were built expressly for the railroad by Wason in 1925; their trucks came from Brill. These cars are low slung, double-ended, and generally reminiscent of the interurbans of the Gary Railways.

When either No. 16 or No. 17 goes into Springfield Shop for rehabilitation, ancient combine No. 10 takes over. The No. 10 was built in 1900 and rebuilt in 1908. No speed demon, it is geared for 25 miles an hour. The newer cars can make 30, but in practice none of the three ever travels much over 20. The roadbed is heavily built, but it has more curves than a Rio Grande branch line. In typical interurban fashion, the motorman makes a slight brake application — straight air — at the throat of every curve and at every facing turnout. Flag-stopping anywhere for anyone, cars negotiate the six-mile main line in about 25 minutes.

The short distance reduces the operating problem to a minimum. No meets are regularly scheduled, but there are several short passing sidings to expedite freight service. Passenger cars take the sidings and let the freights pass by on the main. There is no employee timetable and all train orders are issued verbally. Cars are operated with two-man crews without turning at either terminal. Their baggage compartments always head toward Springfield.

It is a safe bet that in the next few years many another American interurban will succumb to highway competition. It is just as safe a bet that the Springfield Terminal will continue its rambling way through the Vermont hills for many a year to come.

The rolling stock of the Springfield Terminal is tailored to the needs of a shuttle service from a mainline railroad up a winding valley to an important town. Passenger equipment consists of three combination baggage-express-coach cars. Two are fairly modern and the other, which is kept as a spare, was new back in 1900. Cars No. 16 and 17, the latter shown above, are identical units. The spare is wood car No. 10, right. The two steeple cab locomotives do most of the earning work on the railroad. Engine 20 is unique in that it is equipped for multiple unit operation but has no mate. Busses will soon replace passenger service altogether. Tracks will be removed from Springfield's main street but the Springfield Terminal's freight service, much more prosperous and with no able competitor in sight, will continue its operations indefinitely.



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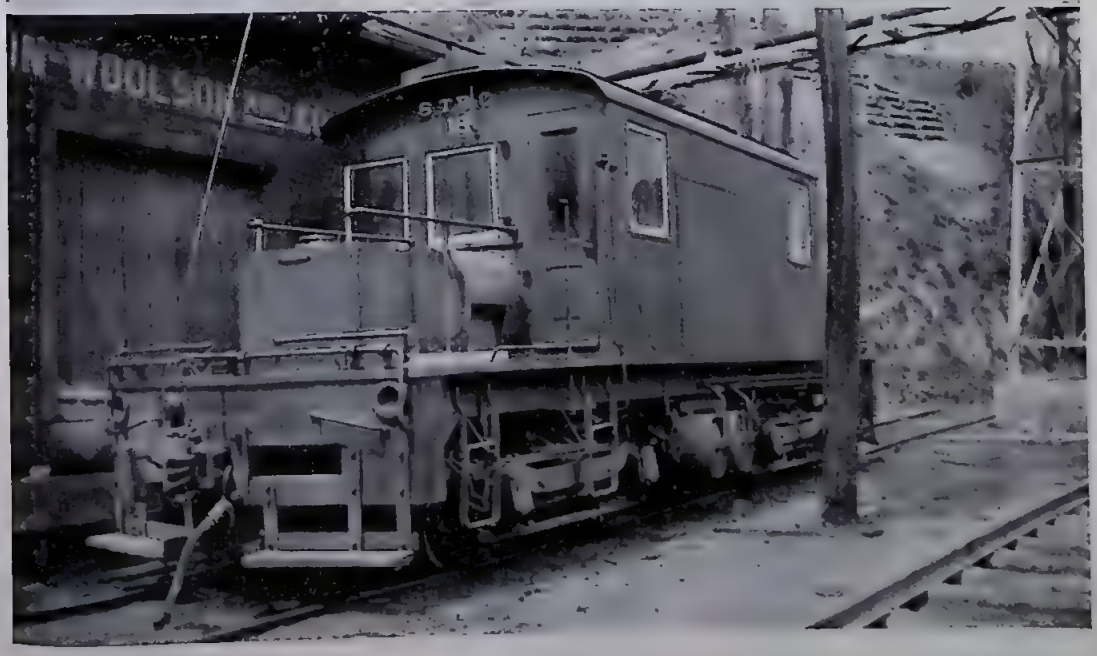


RUNNING EXTRA

Glenn Parker became production manager of our company in March of this year with three strikes already called against him. We had been trying the impossible, to satisfy the demand for TRAINS and THE MODEL RAILROADER by printing more than 90,000 magazines of 56 and 76 pages each month on equipment designed to print 40,000 magazines of 52 pages! Paper was short. Additional leased floor space had not yet been vacated. New machinery was not coming as promised. Engravers were behind schedule. Everything about the varied processes of magazine production seemed topsy turvy because of the unsettled industrial situation and the sudden increase in demand for magazines. As a result both magazines were three weeks behind normal mailing schedule.

What a time to introduce a man to a new job! But Parker was equal to the emergency. He has the ability to bring order out of chaos by careful paper work in the planning of production, and he directs operations without ever seeming to give an order. He has the tact and diplomacy which are so much needed in these days of shortages. Soft spoken, pleasant, and hard working, he is likely to be under a press in oily overalls if something goes wrong.

Right now our plant is finally getting more floor space and a new press, but even before this Glenn had production back on schedule.

Glenn was president of the Milwaukee Junior Chamber of Commerce throughout all this trying period and is active in that organization in promoting good civic policies in our city. Last June the Milwaukee Junior Chamber of Commerce was host to the national convention of the United States Junior Chamber of Commerce and this activity kept Glenn particularly busy after, as well as during, office hours.

Glenn and his wife, Anje, have a 3½ year-old daughter, Doris. Both Anje and Doris are blond and petite. Glenn's family is his first and most important interest after which comes tennis, golfing and hunting. Which, to this column's way of thinking makes for a full and well-rounded life.

Railroad

On Short Lines

TRAINS magazine is unfortunately a dreadful habit like taking heroin or, until recently, reading the Boston *Transcript*. *Life* magazine may not be brought to my desk, *Cosmo* may fail the newsstands and *Fortune* may fold, but for TRAINS I pant and pine, even though it is in the corporate pocket of the corrupt Diesel barons. Me, I am in love with the Bellefonte Central, the Sylvania Central and, perhaps, the Wrightsville & Tennille. I am taking a month's leave to get to Georgia and lie on the unspiked tracks of the beautiful W&T and photograph the engines while they roll over me. The big roads daily send emissaries in the form of vice-presidents and publicity men to engage my affections and eat their free food, but I have sense. I am the bride of the Sylvania Central, and a pox on any rail over 35 pounds.

Lucius Beebe, New York, N. Y.

Boston, Revere Beach & Oahu

BRB&L coaches may have been operating on the Oahu Railway according to the items appearing in "Railroad Mail" and feature articles in your magazine but if they are the Oahu Railway would like to know where. The OR&L got a copy of the article on the BRB&L and has since been trying to find the equipment it has been accused of having. The original coaches on the line came from a builder in San Francisco in 1889. Some are still in service. All of the rest were built in the company shops. Truck parts are the only things brought in from the mainland. The coaches are almost identical in appearance but are not from BRB&L.

Kent W. Cochrane, 104 Camp St., New Britain, Conn.

Give Coach Passengers a Break

As we all know, the new coast-to-coast services have proved very popular. It seems to me that there is only one hitch in the arrangement . . . the coach passengers still aren't getting a break!

E. Seelye, 12 Myrtle St., White Plains, N. Y.

Highest Tribute?

Now that paper is more plentiful you are certainly going to town with TRAINS. I would rather miss a meal than miss a copy of your magazine!

Ebden A. Peabody Jr., Riverside Dr., Augusta, Me.

[We're glad you like our improvements, but confidentially there is less paper right now than ever before.—*Ed.*]

From an Old Friend

During the past two years I've actually railroaded over 43 different systems to the tune of some 250,000 miles. Therein lies the answer to my unfulfilled promises to write articles for TRAINS. . . . I've managed to cover every transcontinental route except Northern Pacific and the portion of the Sunset between New Orleans and El Paso. From December 8 until March 1, I made five complete round trips across the continent, not to mention a lot of shuttling up and down the Pacific Coast . . . riding every conceivable variety of Pullman train from 19 car troop trains to the MP's *Colorado Eagle*.

Bill Moedinger, 4949 Walnut St., Philadelphia 39, Pa.

The Railroad "Y"

One of the most interesting phases of railroading is usually bypassed by the railfan on his search for adventure. Nowhere can he find a larger cross-section of the men who man the trains than in the railroad Y. M. C. A. Here in Washing-

Mail

ton the "Y" is located on the third floor of the Union Station. Every day and night the constant traffic of railroad men going to and from work goes on and on. A friendly "Hi Rebel" brings a "Hi Yankee" from the other side of the room. That heated discussion going on over in the corner? That's a Pullman conductor from St. Louis, he rides the B&O, arguing politics with a Pennsylvania brakeman, who flags one of their fleet of New York-Washington expresses. But if you want to see all other discussions cease and turn to one subject, just start telling of some of your railroad thrills. Then every member wants to tell his experiences too.

Chas. E. Sweeney Jr., 1610A So. 56th St., Philadelphia 43, Pa.

Railroad Vantage

The best place in the Cleveland area from which to watch trains is at Berea, 12 miles southwest of the city. Here the New York Central main line meets the Big Four, and there is almost constant activity. Trains from Chicago, Toledo, and from Big Four points, must go on to Big Four tracks at Berea if they are to enter Cleveland Union Terminal. Other trains use the mainline tracks all the way to Collinwood, where the main line is rejoined by the freight belt and the passenger line. The *Mercury* from Detroit, the *Paul Revere*, and the *Ohio State Limited* all enter the terminal and hence go in on the Big Four, while the *Century*, *Commodore Vanderbilt* and *Southwestern Limited* (New York section) all use the main line.

L. F. Kohn, 1540 E 82nd St., Cleveland, O.

BLT 5-84

Your cover photo for June, 1946, shows an all steel box car bearing the date . . . May 1884; or is this a postwar car of 1984?

D. L. Sabetto, 2083 Random Rd., Cleveland, O.

[Ten brownies to the etcher.—Ed.]

All in a Day's Run

Running extra from Spokane, Wash., to Los Angeles on a 17 car troop train of the Union Pacific, we were sidetracked on the salt flats outside of Salt Lake City. In due time the *Challenger* came roaring through as if running for lost time, pulled by a powerful 4-8-4 steam engine. Rather than take time to remove the Diesel unit after it developed trouble, they had simply coupled the steam locomotive onto it. How that high-wheeled powerful giant was punishing the streamliner! We ran second section from there on.

Wesley Willett, Pollock, La.

Erie's Birthday

Thanks for your article in March TRAINS on the Erie Railroad and its friendliness. For many years the Erie has been the butt of numerous jokes, some of which may have been founded, and some not. At any rate, to the readers of TRAINS the clouded situation has somewhat cleared and perhaps the railroad can take on a new lease in life. Port Jervis is about ready to observe the Erie's 100th anniversary. The first train moved in on New Year's Eve in 1847, just a few scant minutes before the franchise was to expire at midnight. All day and up to the time the locomotive moved into the little community then known as Delaware, residents of the area and workers building the road labored to complete the bridge across the Neversink River, the last remaining barrier. Since then the Erie has faithfully served the section here and wherever it passes.

Henry Millspaugh, Port Jervis, N. Y.

SECOND SECTION

"Steelways of New England" by Alvin Fay Harlow, $4, and "Headlights and Markers," co-edited by Robert S. Henry and Frank P. Donovan Jr., $2.75, are two fine books reviewed on page 46 of this issue. The books are now in our stock room ready for immediate delivery. They are the first of a series of railroad books being published by Creative Age Press.

* * *

[illegible] you posted o[illegible] national topics, cover [illegible] signments, furnish ideas. Box [illegible]06.

Positions Wanted

MAGAZINE WRITER — rewrite-copy editor. Experienced. Good working knowledge of railroads and railroad travel. A. C. Kalmbach, editor and publisher, TRAINS Magazine, 1027 N. 7th St., Milwaukee 3, Wis.

CORRESPONDENT, Boston and N. E. area, desires trade paper and other correspondence. F[illegible] [illegible] reference[illegible] 1-1.

This ad, which appeared in Magazine World, was placed in the Positions Wanted instead of the Help Wanted column. The embarrassing thing is that Al has not received any offers to date.

* * *

Once in a while the post office makes us wonder just how it does business. Last July one of our good friends in Buffalo sent in his four-years' collection of TRAINS to be bound. We sent them out to the bindery and in due course they came back and, according to our records, were shipped to Buffalo. They never got there. After some checking back and a lot of finagling we finally hunted up enough issues to make up bound volumes for the first and second year and sent bound volumes three and four from stock. This time the shipment was carefully checked, the address double-checked and one of our staff put the package in the mail personally.

After a couple of weeks, when we were expecting maybe a thank-you for locating those scarce copies instead of just making a monetary settlement, there came instead another letter of complaint. The books hadn't arrived in Buffalo. You can imagine what we thought! As we boiled, in came another letter concerning them. It was from the proprietor of a book store in OMAHA who said that the books came in and before he realized that he hadn't ordered them he'd sold one to a customer who was standing by as the package was being opened. Since the package was addressed to some bloke in Buffalo, please, sir, what should he do with them now? Telegrams all around saved the situation but we never know these days who is going to receive what, where.

KALMBACH PUBLISHING CO.

1027 N. 7th St. Milwaukee 3, Wis.

Shortest Line, Maybe

At the risk of floods of protest, we list a new candidate for the title, Shortest Railroad in the World (roads on movie lots don't count): The Mandeville & Northern Railway, Mandeville, La., which, although only two city blocks long, has two stations.

Flooded Tunnel

In northeast Pennsylvania, where the Susquehanna River works its way down toward Pittston, it makes a deep, almost closed loop to the south, near a station called Vosburg. The Lehigh Valley Railroad runs along the north shore of the river, and when it reaches this loop it dips into the Vosburg Tunnel, crosses the neck of the loop, and emerges to follow the river once more.

The Susquehanna, unfortunately for the tunnel, is heavily fed by numerous small rivers upstream. When the river rises to flood height the area of the neck of the loop becomes inundated, and the 4400 foot Vosburg Tunnel is swamped. The pictures show the results of one such inundation. Tons of debris deposited after the water subsided held up railroad travel on that occasion for over 48 hours. The photo at lower left was taken before clearing work was begun, after the flood had ceased rising. The larger photo at right gives an idea of the amount of work necessary after a flood to render the engulfed tunnel passable for railroad travel once more. The caterpillar tread shovel has been replaced by one mounted on the rails. Flat cars are loaded with an accumulation of rubbish and mud.

Why Wye?

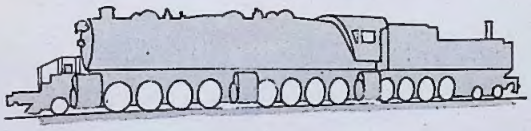
In 1839 a gentleman named F. B. Holcomb, who was associate engineer for the Central Railroad, suggested the wye as a substitute for the turntable in a letter to *American Railroad Journal and Mechanics' Magazine*. Mr. Holcomb wrote: "Having been led, by the objections attending the running of locomotives backwards, or with their driving wheels in front, to consider some method of turning them and their trains more efficiently than the common turning-table, which only admits of one or two cars being turned at a time, and having devised a plan which would, I think, effect this desirable end, I take the liberty to solicit for it your kind attention. The plan would, I think, be found simple and effective. The saving of time and manual labor would, I doubt not, be found to be considerably over the common turning-table, and at the same time it would be found to answer very well the purpose of turnouts at water stations. That additional room would be required, is true. By adopting, however, a radius of curvature for the turning-track of 400 feet, which would be quite sufficient, and making 150 feet (at the tail of the wye) straight, the whole distance out from the main trunk would be but 550 feet."

Mr. Holcomb had based his plan upon several close observations of turntables which he had made. The magazine which printed his suggestion remarked, "The plan proposed by Mr. Holcomb, as a substitute for the ordinary turn-table, appears to be worthy of consideration. In many situations its advantages over the ordinary mode would be very great; and it possesses one of the finest attributes of railroad and machine improvement—simplicity."

William Ellis, 11 York Ave., W. Pittston, Pa.

Behemotta

The question "Which is the largest steam locomotive?" is always good for several hours' discussion because there are several bases of measurement. Must the largest locomotive have the greatest weight, overall length, horsepower, or tractive effort? Weston B. Lazear considers tractive effort most important and nominates a triple articulated, 422 ton freight locomotive built for the Virginia Railway in 1917. Its maximum tractive effort was 166,300 pounds.



This locomotive had a 2-8-8-8-4 wheel arrangement. The third set of cylinders and driving wheels were located under the tender. All cylinders were the same size. The center pair took high pressure steam; then the exhaust steam from the right side went to the headend cylinders, and the steam from the left went to the rear cylinders, making it a compound locomotive. This use of the steam produced another oddity in the appearance of the engine, for the rear cylinders exhausted up a stack at tender rear.

The wheel arrangement gave a rigid wheelbase of only 15 feet 3 inches, although the total wheelbase was 91 feet 3 inches. The weight distribution among the drivers, each 56 inches in diameter, was such that the three groups carried approximately equal loads—60,500 pounds per axle.

The Erie Railroad had three similar triple articulated monsters which it placed in freight service as pushers. These 2-8-8-8-2's, described in the November, 1944, issue of TRAINS, had a drawbar pull of 160,000 pounds.

Railroad Idiom

Henry L. Mencken's *The American Language* contains an interesting piece on American railroad lingo: "There were emergencies to be met—linguistic ones; railroads were being built and the American men made their words fit their work way back in the early '30's; the language began to be differentiated so that entirely distinct railroad names were produced.

"Such every-day Americanisms as box car, caboose, and airline are still strangers in England. So, too, are freight car, flagman, towerman, switch, switch engine, switch yard, switch man, track walker, baggage room, baggage check, baggage master, accommodation train, conductor, express car, flat car, hand car, gondola, way bill, express office, wrecking crew, jerkwater, commutation ticket, commuter, round trip, mileage book, ticket scalper, depot, limited, hot box, iron horse, stopover, tie, fish plate, run, train boy, chair car, bumpers, rail clerk, passenger coach, day coach, railroad man, ticket office, truck, and right of way; and the verbs to flag, to express, to dead head, to side swipe, to stop over, to fire (i.e., a loco), to switch, to sidetrack, to railroad, to commute, and to clear the track. These words are used constantly and their meaning is familiar to Americans—many of them have given the language figures of speech—but the majority of them would puzzle an Englishman."

Burning Up the Rails

A good many strange things happened in railroading during the operation of the magnificently successful Transportation Corps' Military Railway Service in the recent war. One true story is that of two GIs who were running a line in Iran during the time when intense pressure was required to get supplies to Russia. These two men had gone without sleep or rest for over 48 hours on this occasion, and the heat coupled with the hypnotic effect of the train sounds finally drove them to sleep.

When they awoke, they discovered their locomotive still running at a good speed—and standing absolutely still! Jumping from the cab, they investigated and realized that while they'd slept, the locomotive had hit a greasy spot in the rails on a slight upgrade, and had slipped. Thereafter, it had proceeded to grind its way through the soft iron of Iranian rails, already weakened by the heat of the sun. The rails had been melted down to the sleepers, which had then caught fire from the heat!

The sections of the rail, with the imprint of four driver wheels in them, have been saved as proof of this singular tale.

March of Time

Future train rides will be practically one mad whirl of gaiety, what with the talk of movies and dancing en route; a far cry from the days when passengers might hope to shoot a buffalo through the windows!

*

D.&H.

D - - n & H - - l are never needed in the operating lexicon of the model railroad using Mantua HO equipment!

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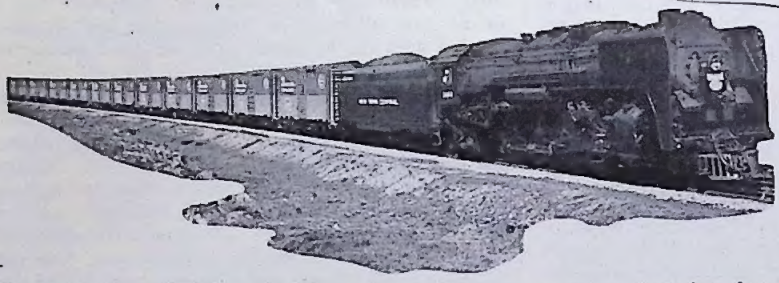
NEW YORK CENTRAL'S NEW *Pacemaker* FREIGHT TRAIN



SPEEDED BY
4-8-2
LIMA
No. 3100

To maintain a 10-hour schedule between New York and Buffalo for its new *Pacemaker* fast freight service, beginning July 1, the New York Central will employ modern steam motive power.

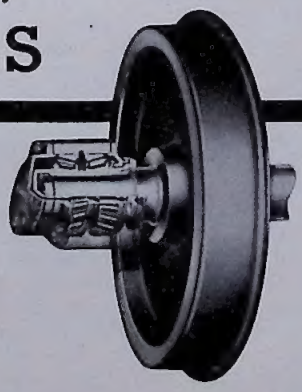
Leaving New York at 7:15 p. m. E. S. T. and including stops at Albany, Utica, Syracuse and Rochester, to deliver and pick up cars, the westbound *Pacemaker* will arrive at Buffalo at 5:15 a. m. This necessitates a road speed up to 65 m. p. h. with trains of up to 75 cars. The eastbound *Pacemaker* has a similarly fast overnight schedule.

For this outstanding service to shippers, the New York Central has provided 1000 specially designed box cars; the upper halves and doors painted vermilion and the lower halves dark gray. The illustration shows the *Pacemaker* freight train powered by Lima-built No. 3100.

LIMA LOCOMOTIVE WORKS INCORPORATED, LIMA, OHIO

AKRON, CANTON & YOUNGSTOWN R.R.
puts 25 new main line freight cars on
TIMKEN BEARINGS

These are 70-ton capacity covered hopper type cars—the first of this type to be equipped with roller bearings. They are being built by the American Car & Foundry Company. The following statement by Mr. H. B. Stewart, Jr., President of the railroad, tells why these freight cars are going on Timken Roller Bearings. "About six years ago we decided to equip our new steam and Diesel-electric locomotives with Timken Bearings . . . and with them we have never had a set-out or hot box due to bearings."



Timken Bearing Freight Car Application as being used under the new Akron, Canton & Youngstown R.R. hopper cars.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
RAILWAY ROLLER BEARINGS

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO

It was a cold January day in 1838. Yet the people of Morristown, N. J. gave warm welcome to the first locomotive ever on the Morris & Essex Railroad. They met the wood-burner "Orange," its builder at the throttle, with cheers, bonfires, cannon and church bells. Thus began "The Lackawanna."

A NEW CONCEPT IN RAILROADING

Many changes have come since the "Orange" struggled to make a 2½-hour schedule for the 32 miles between Morristown and New York.

Vast progress has been made since this quaint fire-belcher served to draw one passenger car and one baggage or freight car over the strap rail.

Today this line is the Delaware, Lackawanna & Western—a great artery in a highly industrialized area. It's a line with a proud fleet of General Motors Diesel locomotives, which speed heavy freight between thriving cities—and over once-grueling hauls through the Pocono Mountains.

Here's another of the 85 major lines and heavy industries which are finding that GM Diesels represent even more than today's best railroading—that this modern motive power also points to the better railroading of tomorrow.

Imagine what will take place when *whole lines* are 100% GM-Dieselized. Think not only of the new level of transportation these Titans of the rails have ushered in but also of the whole new conception of operating and maintenance economy they have established.*

Truly, that will be a new and even brighter era in railroading, abundant with blessings for shipper, consumer, traveler and railroads alike.

**GM Diesels often operate more than a million miles in high-speed passenger service before being withdrawn for major overhaul.*

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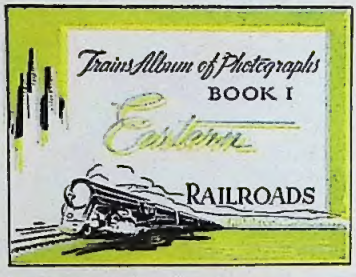
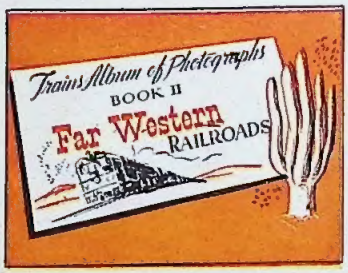
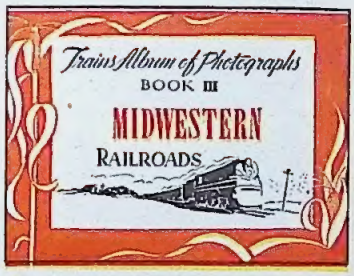


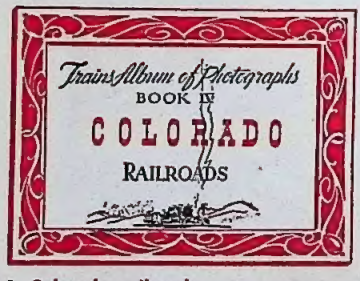
1. Eastern railroads



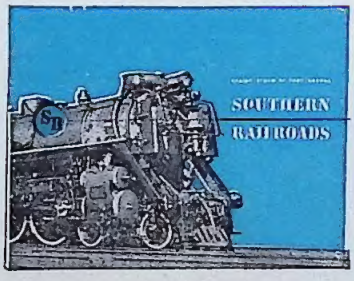
2. Far Western railroads



3. Midwestern railroads

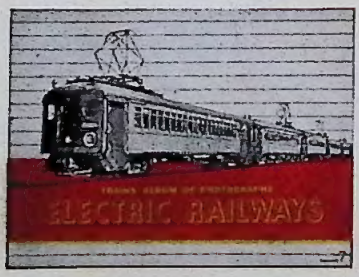


4. Colorado railroads



5. Southern railroads

6. New England railroads



7. Electric railways

8. Pennsylvania Railroad

9. New York Central Railroad

10. Modern Steam Locomotives

11. Southern Pacific Lines

12. Santa Fe Railway

13. Baltimore & Ohio Railroad

14. Erie Railroad

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